THE

Journal of the American Medical Association.

EDITED UNDER THE DIRECTION OF THE BOARD OF TRUSTEES.

PUBLISHED WEEKLY.

VOL. XIV. CHICAGO, APRIL 12, 1890. No. 15.

ORIGINAL ARTICLES.

A STUDY IN DENTAL PATHOLOGY, INCLUDING PITS AND FISSURES OF THE ENAMEL AND INTER-GLOBULAR SPACES IN DENTINE.

Read in the Section of Dental and Oral Surgery at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY R. R. ANDREWS, D.D.S.,
OF CAMBRIDGE, MASS.

Mr. President and Gentlemen:—The subject to which I desire to call your attention this morning, "The Pits and Fissures of the Enamel," is one more or less familiar to us. I have been much interested, while studying the development of the teeth, in some of the phases of this form of interruption of the continuity of the enamel cap, and also in the causes which have led to it. Almost all authorities have given these imperfections their attention. Hunter speaks of them as cracks on the hollow parts of the grinding surfaces of the molars, filled with a black substance; and Fox, writing in 1803, describes them as irregularities of the grinding surface of the molars that lead into a cavity in the centre of the tooth. During the progress of the decay it is under this fissure in the internal part of the crown that we find soonest removed, causing the tooth to appear as if the inside had been scooped out. The enamel, being so much harder than the bone, remains, and only breaks away as it loses its support from the bony part becoming dissolved and removed. The chief predisposition to this disease consists in a defective formation of either the enamel or the bony part of the teeth. This original defect in the structure of the teeth, he says, must depend upon a want of healthy action in the pulps during the time of the formation of them. It is impossible for him to conjecture what can be the cause of this imperfection, but he observes that it is very singular and also very certain that the same kind of structure may be observed in the teeth of many individuals in the same family, who in all other respects are very healthy. He furthermore says that the teeth acquire this disposition to decay from some want of healthy action during their formation. This is proven by common observation that these become decayed in pairs—that is, those teeth that are formed at the same time, being in a similar state of imperfection, have not the power to resist the causes of disease. He asserts that in some of the teeth the decay is seen to proceed from the interior to the exterior part. In 1835 William Robertson, of Birmingham, England, published a remarkable work entitled, "A Practical Treatise on the Human Teeth," showing the cause of their destruction and the means of their preservation. In this work he has probably given more attention to the subject of pits and fissures than any other writer since his time, with the possible exception of Magitot and Wedl.

He has examined most attentively these peculiar imperfections, at which each of the several teeth are most liable to the beginnings of decay, and states that it never occurs on clean and smooth surfaces, but, on the contrary, the attack is in all instances made at such points as collect and retain the food, as in the interstices between the teeth, in pits and fissures in the enamel, or at such other points as from any cause whatever retain the particles until fermentation takes place. He denies *in toto* Fox's assertion that in some of the teeth the decay is seen to proceed from the interior to the exterior part. He was the first writer to tell us that all decay is the result of chemical action. He considers the pits and fissures so often found in the enamel, particularly upon the surfaces of the grinding teeth, the principal cause of their destruction. Mr. Robertson claims that it is to this irregularity of structure, so peculiar to the molar teeth, that their greater tendency to decay is to be attributed, and the liability of the teeth in different individuals to decay will be in proportion to the form and depth of these fissures. On the other hand, where there is a close union of the sections of the enamel upon the surface of the teeth, there will be no tendency to decay. The enamel is completed and the secreting membrane removed previously to the tooth appearing above the gum, so that no other change can take place in the structure of this substance, nor can it be affected by any of the constitutional diseases or changes to which the human body is subject. Therefore, the dura-

bility of the teeth or their predisposition to decay will depend upon the state of the constitution at that early period of life when the enamel is being formed. The enamel of the teeth is now universally acknowledged to be an inorganic substance, and can only be acted upon chemically. Therefore, when a tooth has appeared above the gum we can readily ascertain whether it is or is not predisposed to decay by examining the structure of the enamel, and it will be found that the rapidity of the chemical action and the ultimate destruction of the tooth will be in proportion to the form of the fissures that may be found in it, and their capability of retaining more or less of extraneous matter.

Goddard, 1843, speaks of the fissures thus: "The process of decay here is exceedingly insidious, in consequence of the original opening in the enamel maintaining its primitive size until great destruction of the ivory has taken place beneath it, when it suddenly breaks in, and a large cavity is found where a few hours before none was suspected."

Kelly, 1843, tells us that decay commences in the body of the tooth, the enamel being nearly entire. In this case it commences in the bone (dentine) of the tooth, directly beneath the enamel, and is therefore called internal decay. It is not, however, always produced by internal or constitutional causes. Internal decay is not strongly marked in the molars at all ages. It commences beneath a fissure on the outside of the teeth; a black or blueish spot is at first observed, which increases in proportion to the superficial nature and extent of the disease, till a great part of the outside of the tooth is discolored. In a still greater number of cases the disease takes a direction toward the centre, disorganizes the spongy bone of the tooth, and possibly precludes all hope of its preservation before the enamel even cracks. In a third variety the disease burrows, for a longer or shorter time, so far within the crown of the tooth as to give little or no external indication of its true condition. The bicuspids are liable to similar attacks under their grinding surfaces, and with the same results. The upper incisors occasionally begin decay at a natural, though imperfectly formed, concavity directly in the centre of their inner surfaces; but when the enamel is entire we have reason to believe they never decay at this point. Those who argue that the constitution has but little to do with the teeth suppose that a fissure can always be found over the point where this variety of decay occurs, and hence the only exciting causes are outward and accidental. Allowing this defect to exist, it must be admitted, for it is proof itself, that the constitutional powers were originally unequal to the perfect organization of the teeth, and, consequently, its powers of resisting destructive agents are below the natural standard, which in the teeth are at best lower than in other parts of the system. It is obvious, then, that when any modification of the general health, or any local causes, dispose the teeth to decay, it will be seated where they are least protected on their surfaces in the fissures.

Tomes says that molar (and bicuspid) teeth may present to the naked eye all the appearances of a well developed organ, and yet the enamel may be imperfect, and the imperfection may be in such form as to insure the early loss of the tooth. From the natural depressions which separate the cusps of molar teeth minute but deep fissures may be extended through the enamel to within a short distance of the dentine, and they may become larger as they recede from the surface of the tooth. In most cases which he has examined they have been filled with cementum, or, rather, with that modification of cementum which constitutes Nasmyth's membrane, and very commonly they become the seat of decay. These minute crevices, the existence of which, in many teeth, an ordinary examination would not lead one to suspect, are constantly met with in connection with these forms of defective enamel. Again he says: "In the foremost rank as a predisposing cause to decay must be placed these deep but minute fissures found upon the masticating surfaces of the molars and bicuspids."

Salter, 1875, writes: "The defects in the enamel between the cusps of the molar and bicuspid teeth are very common and very fruitful of destructive disease. The fissures are frequently deep, and at the bottom there exists only a confused, ill-developed enamel that is cracked and porous, affording a most incomplete protection of the dentine from external influence. Depressions on the enamel sometimes occur in unusual positions, giving rise to similar results. Perhaps the most common of these occurs at the back of the superior incisor teeth, and is a pretty sure cause of decay in that situation. These are predisposing causes, practically leaving the surface of the dentine open to the attacks of fluids of the mouth. Where these defects are only superficial, the enamel itself may alone first suffer." Salter shows that the tissue under imperfectly formed enamel is always more or less faulty in structure, and says that this imperfect calcification of dentine is in itself a predisposing cause of decay: that when the calcification globules are imperfectly fused, decay is rapid when once attacked.

Wedl, in speaking of the cracks or fissures in the enamel, says: "These interruptions of continuity are observed very frequently upon the otherwise healthy, sound teeth of young persons. Upon close inspection by means of a lens they are found to be much more numerous than one would suspect at first. In order to obtain a definite idea of the appearance of the enamel cap when it presents fissures or carious spots, it is

advisable to detach the cap by means of a 50 per cent. solution of sulphuric acid. In this way a clear and definite view of the fissures may be obtained. It may readily be shown that when the pigment deposit consequent upon decay is limited to a scarcely perceptible dark brown minute dot upon the masticating surface, it is much more extensive upon the internal or dentinal surface, where it has a roundish or jagged outline. When decay in the groove of a molar tooth is displayed in the form of a very narrow streak containing pigment, the affected portion upon the internal surface of the cap measures a fourth of a millimetre and upwards." Wedl speaks also of finding undermining decay in the substance of the enamel, where the particles of enamel have crumbled away and are detached, leaving a gap or a pit, which increases in extent in the deeper layers of this tissue. I have quite a number of examples of this undermining decay of the enamel in my own collection.

Magitot, 1870, speaks thus of congenital imperfection of structure. "The external imperfections, whose form vary infinitely, consist most commonly of vices of conformation of the enamel layer. These are dark colored, irregular grooves on the masticating faces of the molars and bicuspids, fissures which the finest probe penetrates with difficulty. They approach more or less near the dentine, and sometimes actually reach it and expose it. All their characteristics resemble closely decay of the first degree. They are exclusively due to intrafollicular disturbances of their dentification. Now these disturbances, when they occur, ought necessarily, owing to the law which governs them, to be produced simultaneously and in the same degree in all the teeth which are at the same moment in the process of dentification. This is, in fact, what happens, and here is found the explanation of identical congenital lesions upon homologous teeth, and, consequently, of decay which has the same relative position. It is not, then, surprising to see two molars, for example, or two incisors on opposite sides of the same jaw, presenting the same fissure, the same crevice, the same congenital cavity, and, in consequence, one position, one progress and one identical form of two parallel cases of decay."

Dr. G. V. Black states that "the occurrence of decay in fissures and pits is dependent principally on the opportunity given for fermentations at these points by the depth of the pits and fissures in the several teeth. This," he says, "is modified by the individual predisposition to decay. In the child this may be inferred after having learned the condition of the teeth of the parents. The enamel in this position is very thick and heavy, and the pit or fissure often penetrates it more or less completely, so that the decay apparently does not begin on the outside, but in the depths of the pit, from which it spreads under the strong enamel to a considerable extent, and often penetrates the dentine deeply before giving any sign, especially in children, where the dark color is not present as a warning; it is often shown by an ashy-gray color seen through the enamel. This type of decay appears very soon after the eruption of the teeth; the first to appear in the permanent teeth are usually the first molars. These cavities occur in about 25 per cent. of first molars, or an average of one to every patient who applies for a dental operation." My own experience teaches me to believe that this percentage is considerably under what it should be. Dr. Black's statement that the pits are very often absent in the bicuspids and incisors is not in accord with my experience. I find that they are almost as constantly present in the bicuspids as in the molars.

There are some characteristics in this form of imperfectly developed enamel that have interested me while studying its appearance under the microscope. You are certain to find a tract of imperfectly developed dentine under the fissures, and this I believe to be the original cause of the formation of the fissure itself. Thus, a deep fissure found in a recently erupted tooth is a certain sign of a mass of badly organized and softened dentine within, which may or may not at this time be infected with microörganisms. (See Plate, Fig. 1.) The delicate point of an exploring needle demonstrates that the dentine is nearly or quite exposed. A fissure drill pressed through this apparently enters normal dentine; a little deeper and sometimes considerably deeper drilling reaches the softened and extremely sensitive mass of the poorly organized tissue within. Under the microscope it presents what appears to be a pathological condition, differing from normal dentiné inasmuch as the defect consists of masses of globules of various sizes, and the interglobular substance of a much less dense structure everywhere between them. (See Plate, Fig. 2.) The defective tissue is not against the enamel, but is found in the substance of the dentine, between the enamel and the pulp. The larger mass of imperfectly developed dentine is found to be directly under the fissures, (see Plate, Fig. 1,) but traces of this interglobular structure are found in other portions of the dentine, a result probably of a lack of nutrition, when these layers of the dentine were forming.

In studying the development of dentine with the higher powers of the microscope, in tissues which have been decalcified by the action of weak acids, we can see how these globules may have been formed. We find, between what was the fully calcified tissue and the adjacent organic tissue, a peculiar layer, hyaline in its appearance, which has been named calcoglobulin. In an investigation extending over several months, I have

been much interested in studying its formation. The sections which I have prepared, that show this layer best, are cross sections of forming teeth, at a period when calcification is commencing, or perhaps better, on the edge of a calcifying dentine germ at any stage before the tooth is wholly formed. The peculiar globular formations, next the formed layer of dentine, show best in tissue that has been in the decalcifying acid for two or three days only.

A brief description of the experiments of Prof. Harting and Mr. Rainie, showing the peculiar action of some of the salts of lime in albumen, may be of interest to us at this point; for they claim by these experiments to have found the explanation of the method of development of teeth, bone and shells. Mr. Rainie found that if carbonate of lime be slowly added to a thick solution of albumen, the resultant salt is in the form of globules laminated in structure like tiny onions; the globules in contact become agglomerated into a single laminated mass, appearing as if the laminæ in immediate apposition were blended with one another. The globular masses, at one time of mulberry-like form, lose the individuality of their constituent smaller globules, and become smoothed down into a single mass. Mr. Rainie suggests, as an explanation of the laminated structure, that the smaller masses have accumulated into concentric layers which have subsequently coalesced, and in the substitution of the globular for the crystalline form in the salt of lime when in contact with albumen, he claims to find a satisfactory explanation of the development of bone, teeth and shells. What he found was really the first stage in the process of the calcification of a tissue.

Prof. Harting has shown that the albumen left behind, after the treatment of these globules with acid, is no longer ordinary albumen. It is profoundly modified, and has become exceedingly resistant to the action of acids, resembling chitine, the substance of which the hard skin of insects consists, rather than any other body. The small onion-shaped globular bodies he has named calcospherites, and the layer caused by the coalescing of these, calcoglobulin, as it appears that the lime is held in some sort of chemical combination; for the last traces of lime are retained very obstinately when calcoglobulin is submitted to the action of acids, in the same manner as does that layer which is found everywhere on the borderland of calcification between the fully calcified and the formative tissue. In the course of my investigation I have found many sections showing the formation of these peculiar globular masses on the edge of forming dentine (see Plate, Figs. 3, 4, 5, 6, 7 and 8). One of my specimens shows the edge of dentine, which is to be covered by enamel, overlaid with small globules. (See Plate, Fig. 4.) These are calcospherites. Those nearest the dentine have become a part of the matrix, showing only a portion of their contour; others near them are spherical, of various sizes, and have a glistening appearance; some are made up apparently of a number of smaller ones. At a point a little above, in the same specimen, this time on the edge of the forming enamel, are seen elongated masses of this substance, made up of many small globules, or calcospherites, which are losing their identity. This section is from a human fœtus in the sixth month. Among many cross sections that I have prepared from the tooth of a calf, at birth, there are some which show these globular formations very beautifully. If we examine another, using a low power, ½ inch, we shall see the band of forming dentine to be about as wide as the layer of odontoblasts just within. The section has been stained with alum carmine, but has taken the stain faintly. Next the dentine, towards the pulp, and apparently among the odontoblasts, are seen, even with this low power, irregular, glistening globular masses. At a point just below where these are seen, the pulp tissue and the odontoblasts have been pulled away from the layer of dentine, with no appearance of globular masses clinging to it. The edge has a glistening appearance, something like the globules mentioned above; under a high power, $\frac{1}{12}$ inch obj., this glistening edge shows rounded contours, as if there had been globules which had become part of the already formed band of dentine. In the substance of some of the odontoblasts, and even in the tissue of the pulp near them, are seen small glistening globules, calcospherites.

In another section the narrow forming band of dentine is seen to be made up mostly of globular masses. (See Plate, Fig. 5.) These are especially bright toward and among the odontoblasts. Nearest the pulp they have the glistening appearance which is seen in fat cells. In still another section these globules are in line and have nearly formed what is to be a new layer of the dentine matrix. They have taken the stain nearly, if not quite as well as the dentine already formed, and commence to look very much like it. In places against the formed dentine some of them have, where they were against it, become a part of it, merging into it, without any line of separation whatever. (See Plate, Figs. 6 and 8.) Smaller globules appear to be imprisoned between them nearest the dentine, and these have a marked granular appearance. The forming layer is, at this very early stage of the formation of the dentine formed, and is also about as wide as the layer of formative cells—the odontoblasts—sometimes, though wrongly, called the membrana eboris. At a later stage, when the calcified layer of dentine is thicker, the layer of calcoglobulin is much narrower; and while I have never been fortunate enough to observe it forming in this manner, yet indications of globules and globular masses are never difficult to find within the layer of calcoglobulin.

It is somewhat difficult to arrive at exact conclusions in regard to this globular formation of the dentine. My investigation leads me to believe it is the first form that exists, previous to a calcified layer; that is, that small globules coalescing form large ones, and these again coalescing into a perfect layer, form the layer of calcoglobulin which, by complete calcification, forms the dentine matrix or basis substance. While there are seen small glistening bodies, calcospherites, in the pulp tissues near the odontoblasts, it is probable that the ones which form the larger globular masses have, for their source, the odontoblasts. In many places there is an appearance as though the odontoblasts were being enveloped in the larger globular masses that are forming the layer of calcoglobulin and which become, by calcification, the basis substance of the dentine.

In the April number of the *International Dental Journal*, Phila., Prof. W. X. Sudduth, an eminent authority in dental histology, speaking in regard to my published views, says:

"There can be no question that Dr. Andrews is correct in his conclusion that the globular masses seen on the border-land of calcification are of the nature of calcoglobulin, first described by Mr. Rainie, and afterwards brought forward by Mr. Tomes and ourselves, in discussing the subject. There is, however, a further lesson to be learned from the evidence.

"Three questions arise in regard to the nature of the process herein presented, viz.: as to whether the tissue delineated is normal, pathological, or the result of changes that have taken place during the hardening process. If the condition were artificial, as some seem inclined to consider it, then we should expect to find the forming surface of the dentine throughout the entire specimen presenting the same globular appearance, which is not the case, as has been demonstrated by a careful study of the original specimens. In other portions of the sections the forming dentine showed the even, smooth gradation from organic to calcified tissue. This was so throughout all the sections examined." The particular condition, then, is local in character, and we must therefore dismiss the idea of its being the result of post-mortem change.

"As opposed to the theory presented, that it is the normal production of the basis substance, we have to array our own experience and say that in our studies, extending over several years' constant work in embryology, that we have never met so marked a case of globular formation upon the border-land of calcification in any portion of the body as is here delineated. While we have seen a more or less constant tendency upon the part of forming calcified tissues to produce the small bodies denominated calcospherites, and which have also been observed by Messrs. Robin and Magitot in the pulps of developing human teeth, and by Henle in those of the herbivera, yet it has never been our fortune to observe the globular *masses* shown in the slides from which the plate was made.

"This, however, may be said to be only negative testimony, nevertheless in the case in hand such evidence is of the greatest importance in establishing our view of the case, viz.: that it is pathological in character, for a process to be considered normal must be constant in its presentation. The fact that at least one observer has failed to find it so is more or less conclusive evidence that it is not what might be termed a normal or physiological appearance. When we take into consideration that pathological processes are only perverted physiological processes, which may be only one step removed from the normal, it does not necessarily mean any great divergence from the normal process of development. Then again the same argument that was used against the idea of its artificial nature can be here used, seeing that the other portions of the tissues in the same section do not present a similar character. Our interpretation of the phenomena presented in the plate is that through some cause, the nature of which we are unable to explain, there has been a local disturbance in the physiological process and these (microscopically) large globular bodies have resulted.

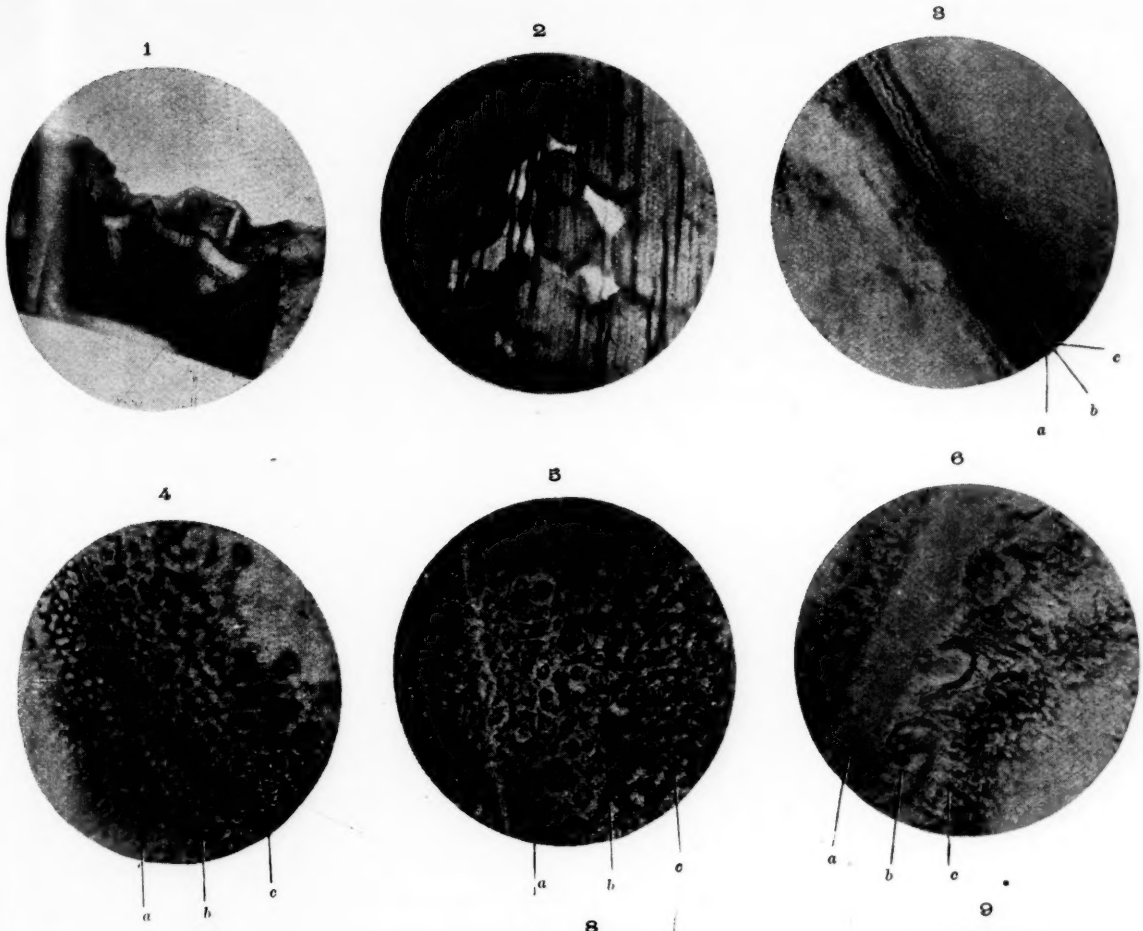
"Mr. Tomes has described what we take to be similar appearances, and if we understand him correctly, holds the same view with us, when he says 'that globular, spherical forms are constantly to be seen at the edge of the thin cap of forming dentine and may be traced in and around the interglobular spaces.' In another place he says, that 'although these spaces are very common, they are perhaps not to be regarded as perfectly normal, but are rather indications of an arrested development at that spot.'"

It is possible that these appearances are, as Prof. Sudduth has stated, only perverted physiological processes, due perhaps, as I have said to a lack of nutrition or some other cause while the dentine is forming. Yet the fact remains, as Mr. Tomes has stated, that globular spherical forms are constantly to be seen "on the edge of the thin cap of forming dentine." That the globular formations in formed dentine are pathological interruptions in the regular process of development I have no doubt, representing an arrested primary stage. Inherited tendencies, I believe, will cause the dentine to assume this structure. The spaces between the globules are soft like cartilage, and when the mass is pressed with an excavator or other instrument it yields, disturbing large numbers of fibrils that are in the mass, which causes considerable pain. The existence of these interglobular spaces can be regarded with certainty, as a condition predisposing to decay, and when the spaces become infected the decay will neces-

sarily be very rapid. Teeth having these characteristics are usually larger than teeth of the ordinary size. Their faces are rough and irregular with protuberances, rising not only from the grinding faces of the bicuspids and molars, but often from their sides with deep fissures between them. Their color is usually a muddy white. The palatine surfaces of the incisors and cuspids also have these fissures. They usually decay very rapidly and in some cases nearly set at defiance the resources of the dentist. Other classes of teeth having this same interruption, are found to be uncommonly long, of a bluish appearance, the incisors are thin and narrow and the cuspids much pointed. The bicuspids and molars are small in circumference and have deep fissures upon their grinding surfaces. They have a soft, chalky texture and the decay is usually light colored and rapid. Pits and fissures are by no means confined to this class of teeth. In teeth of far better quality fissures, cracks and pits in the enamel are commonly found. They are between the cusps, more often upon the prominences of the cusps, here in the form of pits, and upon the approximate surfaces of the teeth. (See Plate, Fig. 9, 10 and 11.) Some of these probably have their origin from accidental causes. On the prominences of the cusps the pits are often found to lead into what are called undermining caries of the enamel, that is, a place where decay is more extensive in the deeper layers than is apparent upon the surface. The pit leads here into a decayed spot, where the particles of decomposed enamel within the cavity have crumbled away, forming a cavity. These are more frequent than is generally supposed. Sometimes the pit is a dark spot, which leads into this cavity and sometimes it is light and difficult to see. It can usually be detected in teeth which are examined by a mirror, where light is transmitted through them, when it appears as a gray or brownish spot within the enamel. Although the cavities of decay are at first within the substance of the enamel they rapidly enlarge and expose the dentine, when infection follows. Cracks are often found on the approximal surfaces of poorly organized teeth. They lead into a decayed tract of the dentine, which is separated from the enamel by the decay, and which is deeply pigmented in color a yellowish brown. The tubuli everywhere against the decayed portion are found to be full of microorganisms, gas-bubbles and granules. These extend in a dark tract nearly to the pulp, looking as tubules do in dried sections when they are full of air. (See Plate, Fig. 10.) On other sections where pits are found upon the prominences of the cusps, dark brown tracts running through the enamel to the dentine are seen. The tubes near this tract are found to be discolored and infected. This line of infection runs into the substance of the dentine in the direction of the tubuli and nearly to the pulp. Between it and the pulp, however, there is a lighter layer of tissue, which may be caused either by the resistence of the pulp to the inroads of infection, or may be an uninfected decalcified layer, caused by the acid given off by the microörganisms. (See Plate, Fig. 11.) Where a section of the recently infected tooth has not been specially prepared by staining to show the organisms, the infected tubes have in them, minute bubbles of gas, which look like micrococci. Some of the bubbles join together like little rods, having the appearance in photo-micrographs of bacilli, and may easily be mistaken for such. (See Plate, Fig. 12.) Their origin is probable in the action of an acid on the lime-salts of the dentine. This acid is given off as a waste product of the bacteria and is every where present in early infected dentinal tubes. It has the appearance of what Prof. Miller has described as broken pipe-stems in the dentine, but I do not think it is the same thing. It is an easy matter to prove that these gas-bubbles are not microörganisms by staining the tissue. I have frequently seen them unstained in sections of carious dentine to which the microorganisms were stained a deep red. In all specimens of stained, early-infected dentine, these bubbles of gas are present in large numbers. Cracks are often found to be present in the enamel on the proximal surfaces of the bicuspids and molars near the neck which lead into the dentine. I have reason to believe these are more numerous than we suppose them to be, and that they are the cause of much approximal decay. Where the dentine within its substance is faulty, as in the cases I have already mentioned, these cracks may be the source of infection equally with the fissures in the crown. Dr. George S. Allen, of New York City, is the only writer that I now recall, who has called especial attention to these defects, in this location, although Wedl may have mentioned them. Dr. Allen says that calcification commencing on the prominences of the cusps gives rise to as many points of calcification as there are cusps. When they meet, from some unknown cause, these cusps do not always unite. Among other places faults of this kind are found on the cervical portion of the enamel, midway between the buccal and palatal faces. They differ from those found on other portions of the tooth, in that they resemble more closely an ordinary crack, that might have been caused by mechanical force or dessication. I can attest to the correctness of Dr. Allen's assertion by sections made across this portion of bicuspid teeth. These show crevices or cracks through the enamel in width sufficient to admit of infection by any of the microörganisms found in decayed teeth.

DESCRIPTION OF PLATE.

FIG. 1.—Section of crown of bicuspid tooth through the fissure from mesial to distal surface, showing a tract of imperfectly de-


1
2
3
c
b
a
4
5
6
a
b
c
7
8
9
10
11
12

veloped dentine and the white zones of partially decalcified matrix under the fissure. About 50 diameters.

FIG. 2.—The imperfectly developed dentine under a high power, showing masses of globules of various sizes, and an interglobular substance of a much less dense structure everywhere between them. The tissue is infected, the tubules being distended by microörganisms. About 1500 diameters.

FIG. 3.—Cross section of calf tooth at birth. A, layer of formed dentine; B, layer of calcoglobulin; C, layer of odontoblasts and pulp tissue. About 200 diameters.

FIG. 4.—From tooth of human fœtus, sixth month, vertical section, showing the deposit of calco-spherites on the formed dentine from the enamel pulp. A, outer edge of formed dentine; B, small globular masses, calco-spherites. About 1200 diameters.

FIG. 5.—Cross section of calf tooth at birth, showing a forming band of dentine. The layer is seen to be made up by the coalescing of the globular masses. A, forming band of dentine; B, calco-spherites and odontoblasts; C, pulp tissue. About 1200 diameters.

FIG. 6.—Cross section of calf tooth at birth. A, band of formed dentine; B, large masses of calco-globulin forming new layer; C, odontoblastic layer and pulp tissue. About 1200 diameters.

FIG. 7.—The same, showing larger globular masses at B forming the new layer.

FIG. 8.—Cross section of calf tooth at birth. A, band of formed dentine; B, buds of calco-globulin forming new layer (these are seen in the central portion of the picture to have become part of the layer); C, pulp tissue. About 1200 diameters.

FIG. 9.—Longitudinal section between the cusps of a molar tooth, showing a pit and fissure in the enamel; also undermining caries of the enamel. The dark lines at the base of the enamel are lines showing infection. Under the enamel the dentinal tissue is not very satisfactorily shown in the illustration. About 200 diameters.

FIG. 10.—Showing cracks in the enamel on the proximal surface of a bicuspid, through which microörganisms have invaded the dentine. The dark mass within the cracks is decay, the tubules being full of microörganisms. The space under the cracks is caused by this decay. About 200 diameters.

FIG. 11.—Longitudinal section of molar, showing a pit in the eminence of a cusp through which infection has reached the dentine, the line of infection reaching nearly to the pulp. About 200 diameters.

FIG. 12.—Appearance of the line of infection of Fig. 11, as seen under a higher power. Tubules are seen to be filled with gas bubbles, granules and microörganisms. About 1200 diameters.

EMBOLUS OF A BRANCH OF THE RETINAL ARTERY, VISIBLE WITH THE OPHTHALMOSCOPE.—DISAPPEARANCE OF THE EMBOLUS AND NEARLY COMPLETE RECOVERY UNDER MASSAGE AND NITRATE OF AMYL.

Read in the Section of Ophthalmology at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY H. GIFFORD, M.D.,

OF OMAHA, NEB.

On February 27th, 1889, I was called to see Mr. C., æt. 29. He stated that about half an hour before, while at breakfast, the right eye suddenly became blind. In a few moments, however, on rubbing the eye and applying hot water, the field cleared up, partly, below, and then remained stationary until my arrival. The eye was found normal externally, but the ophthalmoscope showed the lower branch of the retinal artery to be filled with a whitish plug, from a point just back of the surface of the disk to about one millimeter beyond its border. The plugged portion of the artery seemed of normal calibre and was of a dead yellowish white color. Peripheral to the clot, the calibre was not perceptibly reduced but the vessel had the color and appearance of a vein. A rough test of the field showed the absence of the entire upper half and of the contiguous 20°–30° at the nasal side. Having no test-types with me, the vision was not accurately tested. The eyeball was at once massaged vigorously for two or three minutes, without immediate effect. The patient was then directed to massage the ball for two minutes every half hour, and to inhale 5 minims of nitrate of amyl every three hours.

At 3 P. M. of the same day the patient was seen again and reported a decided improvement. An examination showed no positive trace of the former clot; all the arteries looked normal with the possible exception of a slight thickening at one point of the wall of the lower branch, which may perhaps have been an adherent remnant of the plug. Unfortunately I neglected to examine the periphery with minute care in the direct method, but an ordinary examination showed no traces of bits of the plug impacted in this region, nor did a more careful examination on the succeeding day. The field now, about seven hours after the occurrence of the embolism, was found to be entirely restored in about 50° at the temporal side, the area corresponding to that part of the retina supplied by the median artery. The remainder of the upper half of the field lacked between 10° and 20° at the periphery, this blank being followed by a zone about 20° wide in which objects were seen dimly; followed in the upper nasal quadrant by a sector-like scotoma, with a very irregular border at the temporal side, reaching down close to the point of fixation. V. = $\frac{20}{40}$. The patient had already inhaled two five minim perls of the nitrate of amyl, and was ordered one more that day and two more the next forenoon; the massage being discontinued. The next afternoon the field was somewhat further improved and the dim area clearer. The retinal arteries appeared normal throughout, pulsating well on pressure on the globe; but to my surprise the characteristic œdema of the retina was well marked toward the centre of the fundus, in the temporal ¾ of the lower half of the retina.

No further treatment was given and the condition slowly improved till, on May 2nd, two months after the embolism occurred, with a normal fundus, the nasal two-thirds of the upper half of the field was contracted about 10° at the periphery and showed two small scotomata in the nasal quadrant with—0.5c ax. 180°, V. = $\frac{20}{20}$ in each eye. With regard to the etiology, the case gave no satisfaction. The patient was somewhat run down with over work, but aside from a chronic purulent otitis in the right side, was in good health. No evidence of kidney nor heart trouble.

Cases of embolism are so well known that ordinary cases are no longer reported, but cases in which a distinct well defined embolus can be seen with the ophthalmoscope are exceedingly rare. In the literature at my disposal, including full sets of Nagel's "Jahresberichte" and of the

journals of von Graefe, Knapp and Zehender; besides the hand-books of Graefe-Saemisch and De Wecker-Landotte, I have found but four cases; and of cases in which therapeutic measures apparently achieved brilliant results I can find but two. The cases in which an embolus could be seen are those of Steffan,[1] Ewers,[2] Mules,[3] and Hirschberg.[4] In addition to these Saemisch[5] and Landesberg[6] have each reported a case in which a swelling of the obstructed branch without any differentiation of color, could be seen just central to the point where it suddenly narrowed and became bloodless or nearly so. In Knapp's famous case,[7] in which a hæmorrhagic infarct was first demonstrated, the plugged arterial branch was simply seen to emerge, nearly bloodless, from a reddish dirty-gray spot on the disk, the same spot also covering the vein. In Samelsohn's case,[8] in which, besides embolism of the central artery posterior to the disk, a dark-colored spindle shaped swelling was observed in the course of an otherwise bloodless artery, the supposed embolus was more probably a bit of blood retained by an irregular contraction of the artery.

Besides the above, several cases of embolism of separate arterial branches have been reported, in which the affected branch had a normal appearance for some distance from the centre of the disk and then suddenly, without previous discoloration or swelling, became thread-like or perfectly bloodless. In these cases, as in those of Saemisch and Landesberg, it is probable that the embolus was right there, in sight, at the point of sudden diminution of the vessel's calibre, for while it is hard to believe that an embolus should be so near the color of the normal artery as to be indistinguishable from it, it is still more difficult to conceive of its being located at any other point.

The two cases in which therapeutic measures seemed to be of immediate benefit are those of Mules and Hirschberg, mentioned above. Hirschberg's patient came to him within a few hours after the occurrence of the embolism. The ophthalmoscope showed the branch of the artery running down and out, normal about four disk-breadths, then followed a short stretch of about ⅓ a disk-breadth, containing a brownish "line-shaped" clot, followed, after a very short interval, by a dark-brown appearance of the further larger branches of the artery, which, in short stretches, were invisible so that the vessel appeared interrupted; vision = $\frac{15}{200}$, and the field showed a sector-shaped defect corresponding to the plugged vessel. The patient was made to look toward the nose while the ball was rubbed vigorously on the temporal side for about a minute till pain, lachrymation and phosphenes supervened. The patient soon reported vision improved, but no accurate test was made at the time. On his way home vision became normal and the next day the fundus and functions were normal. Mule's case appears to have been precisely like my own. His patient was a very healthy young woman who came to the hospital within an hour after the sudden appearance of a defect in the upper field. "Her right visual field was found contracted above. Seen under direct ophthalmoscopic examination the fundus showed a blocked lower retinal artery, the clot, which was colorless, being visible and extending from the entrance on the disk to the first bifurcation; the plugged vessel looked as if it had been stuffed with cotton-wool. The retina was slightly œdematous. Massage was tried and the clot disappeared, sight at once improved and the vessel was seen well filled." Noteworthy is the fact that the woman had a similar attack a year before and had recovered at once on rubbing the eye. In the abstract from which alone I know this case, it is not stated whether the recovery was complete or whether, as in my case, scotomata were left. In the discussion following Mule's paper it was suggested that the clot was probably composed of leucocytes, and some expressed doubt as to the embolic nature of the case. Frost thought the white appearance of the vessel was not due to its being plugged but to its being empty; and as this case is so similar to my own, the suggestion that the white portion of the vessel was empty, the real embolus lying further back, is worth considering. My reasons for thinking the whitish portions plugged and not empty are: first, that there was no perceptible diminution of the diameter at that portion; second, it is doubtful if a freshly emptied normal artery would look white at all. In Hirschberg's case the empty portions of the artery were not white but simply invisible. Later, when secondary changes have taken place, obliterated arteries appear as glistening white strings, but this plug was not a clear glistening white, rather dull and yellowish. Third, the relations of the branches of the central artery in my patient were such as to make highly improbable if not impossible for the clot to be located more centrally than the end of this white stretch. By reference to the sketch it will be seen that the central artery bifurcated almost at the level of the disk-surface, and the whitish stretch seemed to go clear back to the point of bifurcation, so that an embolus lying central to it would have plugged as well, the superior branch, which everything showed to be free. These considerations make me believe that the whitish portion of the vessel was plugged and not empty, at the same time I cannot say that it *must* have been plugged, for it can be urged on the other hand that I might have overlooked a

[1] Steffan, Nagel's Jahresbericht v, 391.
[2] Ewers, Ibid., iii, 238.
[3] Mules, Ophthalmic Review, August, 1888.
[4] Hirschberg, Centralblatt f. Augenheilkunde, Oct., 1888.
[5] Saemisch, Monatsblätter für. Augenheilkunde, iv, 32.
[6] Landesberg, Archiv f. Augenheilkunde, iv, 1, 109.
[7] Knapp, Ibid., i, 1, 31.
[8] Samelsohn, Ibid., iii, 1, 32.

slight decrease in the diameter; that the main branch with its thicker walls would be more apt to look whitish when empty, than the smaller branches which in Hirschberg's case were, where empty, invisible; and finally that the bit of artery containing the real plug, between the central end of the whitish stretch and the bifurcation of the central artery may have been so foreshortened as to appear wanting. The color of the plug might, at first thought, be urged against its genuiness, but *a priori* the objection is hardly warranted. Virchow[9] in prophesying that emboli would be directly seen with the ophthmalscope, said they would be recognized by their whitish appearance.

Regarding the suggestion that the plug was probably composed of leucocytes, this coincides with the friability which it must have possessed in order to be disposed of with so little permanent injury; though it is hard to imagine where such a clump of leucocytes could have originated in a healthy young person. The permanent contraction of the field and the scotomata indicate secondary plugging of small arteries, such as would be naturally expected after the breaking up of a clot in a large branch; and though these were not detected with the ophthalmoscope, it is possible that they might have been if the fundus had been gone over with the pupil widely dilated.

With regard to therapeutics, there appears to be no good reason why massage should not be tried in every fresh case of embolism. In old cases nothing is to be expected from it, nor is there much reason to be sanguine as to its effects in cases where the plug is situated so far back of the disk as to be uninfluenced by changes in the intra-ocular pressure. In other words results are to be looked for from massage, mainly in cases of embolism of a branch rather than the main central artery. It will be observed, that the three cases in which it has apparently done good were very recent. In Hirschberg's case the embolism occurred during the afternoon and the patient was seen at seven the same evening. Mule's patient was at the hospital within an hour after the embolism took place; while my case seems to have been observed earlier than any other on record, namely, after about half an hour. A fair estimate of the value of massage and other therapeutic measures is interfered with by the fact that while it is only in fresh cases that any particular result is to be hoped for, these are also the cases in which spontaneous recoveries occur. Such recoveries are probably much more frequent than we have any idea of, for, occurring as they do, generally before there is time to consult a physician, there is little chance of the oculist ever hearing of them and if he does, after they have occurred, they cannot be recorded as recoveries from embolism on account of the uncertainty in the diagnosis. Mauthner,[10] who had the fortune to witness a spontaneous recovery while he was studying the fundus of the affected eye, lays such stress on this chance that he advises doing nothing for an hour after the embolism has occurred, lest the plug be fixed more firmly, while, if left to the natural forces, it might be loosened gradually and carried away. That this unfortunate result of interference might possibly occur cannot be denied, still it seems altogether probable that as a rule such remedies as massage and nitrate of amyl would only facilitate the natural process. I should therefore, most decidedly urge the use of active measures as soon as possible.

With respect to the use of nitrate of amyl I supposed until recently that mine was the first case in which it had been employed. I find, however, that in the discussion of Mule's case, Jessop mentioned having tried it in a similar case, without effect. Theoretically, it would seem to promise more than massage, especially in embolism of the central artery where the plug is so far back as to be uninfluenced by variations in the intra-ocular pressure; and where there is no heart lesion, both should be certainly tried. I ordered 5 minims every three hours not knowing how much could be borne. In another case, I should try using it every hour. Where a heart-lesion is the probable source of the embolus, it might be questioned whether the chance of its relieving the embolism were greater than that of sending a second embolus after the first or perhaps into the other eye. Still if the heart itself could stand it, I should think its use warranted, even then, if massage alone should fail.

[Since writing the above it has occurred to me that the embolus may have been of fat. This would correspond well with its appearance and friability.]

[9] Virchow, quoted by Samelsohn, loc. cit.
[10] Mauthner, Nagel's Jahresbericht, iv, 337.

EXTROVERSION OF THE BLADDER.

Read in the Section of Surgery and Anatomy, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY CHARLES B. PORTER, M.D.,
OF BOSTON, MASS.

The subject of the communication which I have the honor to present to you to-day is the report of operations upon two cases of extroversion of the bladder, a congenital deformity in which the bladder, with mucous surface exposed, protrudes hernia-like in the lower hypogastric region. Its anterior wall and corresponding portion of the abdominal parietes are wanting, and usually the symphysis pubis. The urine dribbles from the ureters, or is ejaculated in jets on coughing or sneezing. Its constant contact excoriates the skin of the genitals and thighs, and makes its possessor miserable and, with the attendant foul urinous odor, an object of repugnance to those

about. This deformity is more common in males than in females. The other parts of the genito-urinary system are usually present in a more or less developed state. My cases present one of each sex, and in the description of the abnormalities in the two will appear a résumé of nearly all those found in the two sexes. Although this deformity is distressing, persons affected with it live for many years. Vigneau collected seventy-one cases which had not been operated upon, and found that ten died between 10 and 20 years, seventeen died between 20 and 40 years, five died between 40 and 50 years, and one reached the age of 70 years.

Nevertheless, in some cases the mucous membrane takes on a change resulting in malignant disease, due, probably, to the constant irritation of the urine and clothes. In one case, a man of middle life which I had the opportunity to watch, the exposed bladder became studded with epitheliomatous masses, and his last days were those of supreme suffering. It will be interesting to spend a few moments in considering the evolution, so to speak, of operative interference to remedy this deformity. So far as I can ascertain, no operation for the relief of exstrophy was performed until the last half of the present century, when Mr. Lloyd, of St. Bartholomew's, in 1851, made an attempt to divert the passage of the urine into the rectum by passing a seton from the bladder through into the rectum, intending subsequently, after the fistulous tract was established, to close the gap in the abdominal wall by refreshing its edges and uniting them by suture. Unfortunately he was not able to complete the operation, as his patient died on the fifth day from peritonitis. Post mortem examination showed that the recto-vesical fold of the peritoneum descended much lower than normal, and had been perforated by the seton. Since Lloyd's unsuccessful attempt to establish a fistulous communication with the rectum this has been accomplished by Simon. I have not been able to obtain an account of the operation and the length of time the patient lived, but another writer who refers to the case states that death was due to pyelo-nephritis, rather than the result of operative procedure. Holmes, in order to avoid a wound of the peritoneum, endeavored to establish a tunnel through the perineum, with communication of the ureters with the rectum. Its permeability was delusive and he abandoned his idea. Thomas Smith diverted each ureter into the colon of the corresponding side by successive operations. His patient died after the second, and the ureter first operated upon was found impermeable. Sonnenburg has extirpated the bladder, uniting the ureters to the abdominal wall at a central point. A shield and urinal was a subsequent necessity. In all the various operations mentioned for diverting the urine from its natural outlet there are elements of serious danger. In connection with this subject it will be interesting to refer to the results of some experiments on dogs by M. Tuffier, of Paris, to establish a communication between the ureters and intestine, and others by M. Dastre, to unite them to the abdominal wall; all died of peritonitis or pyelo-nephritis. The transplantation of the ureters into the rectum upon a dog has been done successfully by Prof. Novarro, of Sienna, and the operation reported before the Italian Surgical Society of Genoa. Until 1853 no successful attempts had been made to cover the exposed bladder by flaps, when almost synchronously Roux, Richard, Pancoast and Ayers each performed a successful operation by the transplantation of flaps of skin from the adjacent parts. The method of transplantation of the flaps and the region from which they are taken varies with each operator and the extent of the case, and results only in a cover for the exposed bladder, since no sphincter vesicæ can be formed. In the adult, and especially the male, the introverted skin grows its hairs, and the deposition upon these of the salts of the urine forms concretions which are analogous to stone in the bladder, and produce similar symptoms. To reduce this reservoir to a minimum, Dr. H. J. Bigelow, of Boston, in 1876, dissected the mucous membrane from the exposed surface above a line drawn transversely across the orifices of the ureters, and turned a flap of skin on to the denuded surface, which united, leaving only the part below the line of the ureters exposed. This was afterwards covered by another operation. Tredelenburg, of Bonn, reported to the sixteenth Congress of German Surgeons a number of cases by a new method. He says that an effective bladder covered with a genuine mucous membrane can only be obtained by the direct closing of the edges of the fissure, forming in the same manner a urethra lined with mucous membrane and a normally formed penis, with the possibility of the subsequent establishment of the function of the sphincter vesicæ. This is the conception of an ideal operation. According to his experience the loosening up of the soft parts enough to allow this is not possible, on account of the wide separation of the pubic bones. He has, therefore, in children, and he limits the age to those under six years, performed section of the sacro-iliac synchondrosis on both sides, and, by continued pressure kept up by special apparatus, has lessened the pubic hiatus to one centimetre. In no case has he obtained continence of urine.

The bringing together of simply the refreshed edges of the bladder has been attempted twice. A Strassburg surgeon first dissected up a small flap around the bladder two centimetres broad. Having pushed back the bladder by means of a rubber ball ending in a small tube, he united over it, by interrupted sutures, the refreshed borders

of the skin, so that the ball found itself shut up in the new formed bladder. The stitches, with the exception of the two uppermost, came to naught, and the mother declined having anything further done.

Second Case.—In November, 1884, Dr. Hal. C. Wyman, of Detroit, did on a child five days old an operation as ideal as that of Tredelenburg, and without section of the sacro iliac synchondrosis. It was reported in the *Medical Record* of December, 1885, and from it I will quote the description of the operation:

"The child was given chloroform and the mucous membrane was removed in a strip one-half inch wide, running round the margin of the vesical wall, where it blended with the integument of the abdomen, except a small area which corresponded to the inferior wall of the urethra. Then an incision was made on each side through the integument and superficial fascia arising from Poupart's ligament, just forward of the anterior superior spine of the ileum, upward a distance of 2 inches, for the purpose of securing sufficient relaxation of tissue to let the opposite pared surfaces come together and unite. The pared surfaces were then transfixed with three hare-lip pins and a figure-of-eight ligature was passed about them, bringing the margins of the abdominal cleft in contact. Additional sutures were passed between the pins and on either side of them, securing perfect apposition of the opposed surfaces. The child progressed rapidly to recovery and a perfect union of the opposed surfaces resulted. It was my intention to make a second operation for the restoration of the urethra and dorsal portion of the penis, when two months later the child was attacked with convulsions, which terminated fatally, but had no apparent cause in the conditions leading to or growing out of the operation."

M. Pousson, surgeon to the Bordeaux Hospital, published last year a series of papers on this subject in the *Annales des Maladies des Organes genito-urinaires.* He had collected ninety-five cases, in many of which certain important data were wanting. He calls attention to the seeming great mortality, which amounted to fifteen deaths in the ninety-five cases, and says that at first sight the number seems enormous, for painful as the deformity may be, it does not compromise life. In justly estimating the mortality it must be remembered that of the fifteen deaths one was from cholera infantum five months after operation, one from pulmonary trouble one and a half months after, and one of erysipelas of the face; that reduces the mortality to twelve. Of these, Pousson was convinced that four ought to be attributed rather to a preëxisting pyelo-nephritis than to the operation itself. All told there remained eight cases in which death may be attributed to operative interference. Of these, four died of peritonitis, one of erysipelas, one of shock, and one an accident during anæsthesia. Of these eight cases three occurred where the urine was diverted into the intestinal tract, and five where the closure by flaps was performed. No deaths in the four cases of Sonnenburg and Niehans, where the bladder was extirpated and the ureters sewed to the anterior wall of the abdomen. No deaths in the six cases in which the approximation of the pubic bones was followed by bringing together the refreshed edges of the bladder; so that the operation of diverting the urine gives a mortality of 30 per cent.; operation by flaps, 6.33 per cent.; approximation of pubes, none; diverting of urine to abdominal walls, none. He concludes that age is indifferent to the success of the operation. All young children should be operated on as soon as possible, to take advantage of the vitality of their tissues and the rapid cicatrization of the wounds. The operator should not count on any coöperation of a child from 7 to 10 years of age, and if he wishes to rely on this as an aid, should defer interference to the age of 15. Although age diminishes the chances of success, it has been achieved in those as old as 40. Sex is unimportant.

CHOICE OF OPERATION.

With regard to the choice of operation, it seems to me that age and the extent of the cleft must determine. Up to the present time no operation has attained continence of urine. The results of diverting the urine into the intestine are not encouraging. Diverting the urine to a central point in the abdominal wall does not commend itself to me, although no deaths have followed the four cases I have been able to collect. Tredelenburg's operation has up to the present time achieved no more than the method by flaps, and I think any surgeon would hesitate to submit his own child to bilateral section of the sacro-iliac synchondroses as a preparative step to a closure of the vesical cleft. On an infant or young child Wyman's method is in suitable cases the best. It is practically Tredelenburg's, minus the objectionable feature of section of the sacro-iliac symphysis. The method by flaps is one adapted to both sexes and all ages. The surgeon, before operation, should inform himself as to the condition of the kidneys, and continually keep in mind the main result for which he is striving, namely, a free drainage of the urine, for otherwise the ordinary results from obstruction ultimately follow; these are dilatation of the ureters and destruction of the kidneys. None of the accompanying malformations contra-indicate the operation. The development of the prepuce and scrotum in the male, and the labia minora and majora in the female, furnish the operator abundant material for the display of his ingenuity in acquiring the flaps.

All the general rules of plastic surgery hold in these operations.

The flaps must be about a third larger than the gap to be filled.

They must be arranged in such a manner as to furnish their pedicles an abundant supply of blood.

During any delays in the operation they should be covered with hot towels, wet in an antiseptic solution.

They must be handled as little as possible, and rarely with forceps.

Any dragging on the pedicle endangers the vitality of the flap.

All bleeding must be arrested before the flaps are adjusted in position.

Light and gentle compression prevents any oozing between them.

The operation completed, they should be kept for hours under moist, hot, antiseptic dressings.

Perfect antisepsis should be maintained throughout.

Case 1.—A man æt. 25 years entered the Massachusetts General Hospital April 10, 1877. He had been a farm hand and able to do as much work as any one. There was complete extroversion of the bladder, the exposed portion being about 2½ inches in circumference and somewhat irregular in contour. A little below its middle and a short distance apart are the openings of the ureters. The mucous membrane is covered with ulcerations and concretions of the urinary salts. There is want of union between the pubic bones, which are separated about 2 inches. Just below the bladder there is a rudimentary penis about 2 inches in length; the urethra is exposed throughout, there being complete epispadias. The lower part of the urethra is turned up against the surface of the bladder, and the urine flowed constantly from each end of the sulcus thus formed down over the scrotum and perineum. On the under surface of the penis and the glans there is a large fold of loose skin representing the prepuce. The left testis is still in the abdomen, and on the right side there is a scrotal inguinal hernia. There is a slight umbilical hernia above the bladder. The whole region is excoriated from the constant irritation of the urine and the slightest touch causes intense pain. There has never been the slightest sexual desire or enjoyment. The patient was kept in bed, the parts carefully washed and oxide of zinc ointment applied to the excoriated parts. At the end of two weeks all the excoriations had healed and the skin was in a healthy condition suitable for operation. I decided to divide the operation into two stages: the first to obliterate that portion of the bladder above the ureters by Bigelow's method. The preliminary operation was as follows: The patient having been etherized, the mucous membrane of the bladder above the openings of the ureters was dissected off and the edge of sound skin surrounding this part of the bladder was refreshed. A skin flap about 1¾ by 4 inches large was then taken from the abdomen, the pedicle being above the right inguinal ring, and the longest diameter of the flap being nearly parallel with the axis of the body. The flap included the superficial epigastric artery, which was cut and tied at the upper end of the flap. The flap was then turned across the refreshed surface of the bladder and stitched to the surrounding skin with silk sutures. The wound from which the flap was taken was easily brought together and united. Warm compresses were held on the flap for several hours. In five days all stitches had been removed, and the wound of the abdomen was healed and the flap was firmly adherent to the upper part of the bladder. About four weeks after the first operation the parts had become entirely cicatrized, and the patient was up and about. A month after the first operation patient was again etherized and a second operation performed. At this operation I decided to make use of the skin of the penis, the preputial part of which was very abundant, to cover in the remaining exposed surface. The patient had never had any sexual desire. The penis was rudimentary and he wished me to make any disposition of it that seemed best. The prepuce devoid of hair would make the best possible flap to turn next the mucous membrane of the bladder, and thus avoid concretions which are so apt to form where hairs are present on the introverted flap. The corpus spongiosum with its urethral surface was dissected from the corpora cavernosa and left attached at its base. The skin of the penis was dissected off the corpora cavernosa as far down as possible, a double ligature of strong catgut passed through the corpora cavernosa at their origin from the rami of the pubes and tied each way, and the corpora cavernosa cut off close to the ligature. This left an abundant mass of skin and all the urethral mucous membrane. The penile portion was then split in the median line, the incision being carried down so as to allow the urethra to be brought through the slit; this was turned down and stitched to the edges of the cut so as to form a sort of trough running from the lower part of the bladder to a point which was near the root of the penis. The prepuce was then folded upon the penile skin and held in place by a catgut stitch on each side, so that on turning the flap up in front of the bladder the preputial portion was opposed to the mucous membrane of the bladder. The edges of the skin surrounding the bladder and the lower edge of the flap covering the upper part were refreshed and united to the edge of the preputial flap, which was also refreshed. The median slit was then united, with the exception of the lower part where the urethra came out. Thus it will be seen that the surface of the bladder was entirely covered in, the skin opposed to

the mucous membrane being the hairless skin of the prepuce, and the urethra forming a tunnel, draining the cavity thus formed at its most dependent point. Silk and wire sutures were used to secure the flaps in position, and the vessels, which were large and numerous, were tied with catgut. A bent glass drainage tube was introduced through the new urethra and left in; warm compresses were held over the parts for several hours. For two days everything seemed favorable for a perfect result; flaps were apparently healing by first intention, and there was good circulation in every part. At the end of the second day, however, there was a sharp hæmorrhage from near the stump of one of the corpora cavernosa, and the clots tore away the upper corners of the preputial flaps. On tearing up the end of the urethra, which was already firmly adherent, and turning out the clots, all bleeding ceased. The flaps were then held in place by means of strips of fine silk gauze fastened on with flexible collodion. In six days there was union throughout except at the upper corner, and all stitches were removed. After this three other trifling operations were necessary to close the very minute openings at the corners, and a little over five months after the operation everything was entirely healed and all urine passed out through the urethra. A shield with rubber bag attached was fitted and the patient discharged from the hospital.

Case 2.—A girl æt. 8 years entered the Massachusetts General Hospital January 3, 1889. She was healthy and well formed, but for complete extroversion of the bladder. The cleft extended through the mons veneris, symphysis pubis and urethra into the vagina, which was split throughout and formed a sort of trough down which the urine ran when she was in an upright position. The pubes were separated 3 inches. The mucous membrane of the bladder and vagina was exposed, bleeding on the slightest irritation. The ureters opened near the middle of the exposed surface an inch apart, and on coughing the urine was forced out in small jets. On straining the exposed bladder bulged out, forming quite a hernia. Surrounding the bladder was a ring of cicatricial tissue ½ inch wide. By the most careful rectal examination under ether, no uterus or uterine appendages could be felt. The child had always been well and healthy, and played about with other children until about two years ago, when she commenced to walk in a stooped and waddling fashion. The urine dribbled constantly and she was with the greatest difficulty kept clean. The parents are healthy and there has never been in either family a case of similar deformity.

OPERATION.

January 11, 1889. Ether given. A pattern in cloth was cut of the size required to cover the exposed surface. A flap of skin a third larger than the pattern to allow for shrinkage was raised from the middle of the abdomen between bladder and sternum. Its pedicle, which was broad, was attached just above the bladder. The flap was temporarily covered with towels wet in a hot solution of boracic acid. Two side flaps, each half the size of the large flap, were then cut from the pubic and inguinal region, with pedicle at the side of the split mons veneris. These were folded in hot wet towels. The skin around the bladder was now raised up about ½ inch, making a raw groove running around the margin of the vesical wall where it blended with the integument, except a small area which corresponded with the split vagina. The large abdominal flap was then turned down with the skin surface next the mucous membrane, and the edge stitched into the groove above mentioned, with fine catgut, leaving only on middle line a canal for passage of urine formed by the vagina. The two side flaps were then swung round towards the middle line, and their raw surfaces opposed to the raw surfaces of the abdominal flap. They were stitched to each other on the middle line and at their circumference to the same groove as the abdominal flap. In this manner a complete cover for the bladder was made. The abdominal wound from which the upper flap was taken was brought together by stitches in the middle line; the two internal wounds were left to close by granulation. A double rubber drainage tube was placed in the bladder thus formed. The seat of operation was covered with towels wet in a hot 3 per cent. solution of boracic acid, and they were changed frequently for a number of days. She made rapid recovery, the the wounds closing by first intention, except those at the side purposely left open to avoid traction on the flaps, and in less than three months was dressed and playing about the wards. A plaster cast was taken of the parts, and a hard rubber shield with urinal attached was fitted by Leach & Greene, of Boston. This she now wears, and I have the pleasure of showing it to you together with the patient herself.

THE RELATION OF TONSILLITIS TO RHEUMATISM.

Read by title in the Section of Laryngology and Otology at the Fortieth Annual Meeting of the American Medical Association, held at Newport, June, 1889.

BY S. J. RADCLIFFE, A.M., M.D.,

OF WASHINGTON, D. C. MEMBER OF THE AMERICAN AND BRITISH MEDICAL ASSOCIATIONS, WASHINGTON MICROSCOPICAL SOCIETY, ETC.

I am aware that I present on this occasion no new topic for your consideration, and am sure you might ask very properly, what profit can possibly grow out of its discussion. And yet we are all aware there are many simple questions in medicine not yet fully understood, and it is better to well develop those first, before we make an at-

tempt to penetrate into the more intricate. It is also well to remember that all questions in medicine tend towards one end; that the lesser is contained in the greater, and in developing the simple we gain an insight into the more complicated.

The relation of tonsillitis to rheumatism is a very plain question, and needs no especial treatment for its elucidation. There are many stranger things in our experience than the association of such diseases, and however paradoxical it may at first appear, there are but few present, who, if they would think over their cases, would not call to mind numerous instances where these two apparently distinct affections came so closely together, or were combined in the same patient so intimately as to give no doubt of their etiological relations, though at the time treated as distinct diseases.

There can be no doubt there is a connection between tonsillitis and rheumatism, the subjects of which are also in a more or less degree rheumatic subjects, but whether they have the rheumatic diathesis, is a problem not easily solved. In all probability it carries with it also this distinguishing feature. This is proven not only by the diagnosis, but also by the treatment. Remedies applicable to, and which in the main cure rheumatism, cure tonsillitis, and *vice versa*. I might add also, that the same exciting cause apparently operates in the production or development of either disease, namely "catching cold."

But we are far from being correct, however, when we say that "catching cold" is only the exciting cause of either tonsillitis or rheumatism. So far as our present knowledge goes we are not in a position to affirm that tonsillitis or rheumatism originates *de novo*, either from a previous constitutional disturbance, or from an external exciting cause only. It is generally believed that constitutional predisposition is necessary, but whether this opinion is correct, whether this state of the system is accidental, or the effect of a rapid development of some special atmospheric contamination, some specific germ absorbed through, or by the alimentary tract, there is still some ground for doubt. We know that after exposure to wet, and cold, under some contributing circumstances, as depression, or general malaise, an attack is occasioned either of the one or the other, or of both combined. We do not stop to consider whether the affection was already absolutely in the system waiting for something to develop it, but at once begin to treat manifest symptoms presented to us by the inflammatory condition of either the tonsils, or the fibrous structures about the joints.

As we cannot then positively affirm, that either disease has simply or only, either an external or internal origin, if either may develop in a previously healthy person, after exposure to wet and cold, we can easily reconcile other seeming discrepancies between them, as to symptoms, as well as to cause and effect. If we consider the tonsils as primarily organs of absorption, and not differing materially from the general lymphatic system, through which morbid material may enter the economy, it is very fair to conclude that such material may cause inflammatory action in its passage, or by arrest in their tissues, if afterwards, by continued absortion through the neighboring lymphatics, which converge towards the tonsils it sets up a more general febrile condition, locating itself, or its greatest force upon some of the fibrous structures of the joints, or producing some other widespread quite as definite febrile disorder.

It has been demonstrated that the material in quite a number of septic diseases enter the system through the crypts of the tonsils, and have their primary manifestation there, and there is no doubt that such is the case, though perhaps this formula may be extended or modified by adding that this function of absorption is shared by the general buccal mucous membrane, though the principal absorption, no doubt, is through the crypts of the tonsils. If the tonsils are absorbing glands to withdraw excess of buccal and pharyngeal secretions, and with them all material normal or morbid there may be mixed with these fluids, it is not to be wondered at that their continued functional action in this direction should make them particularly liable to inflammatory conditions, manifesting such conditions first locally; and the greater the liability and degree of action, the more intense and energetic the morbid material absorbed.

So far we see the relation of tonsillitis to rheumatism as regards its external origin, or its etiology from an external standpoint. We see that the rheumatic nidus, or germ, if I may so call it, may be a positive external entity, may penetrate into the crypts of the tonsils, may stop there, producing tonsillitis, or may continue its course, originating general rheumatism of the synovial membrane of the joints—a general rheumatic seizure expending its influence, instead of in the tonsils, on the various articulating surfaces. This is not only possible but probable. We know that most inflammatory diseases have an extrinsic cause, and it is not unreasonable to believe there is no exception in the case of either rheumatism or tonsillitis.

Even if we recognize the view that the morbid material exists already in the fluids, and need only the exciting cause to develop it into active life, this does not militate against the part taken by the excitant, the yeast, the ferment, to arouse the dominant affection—for the one is but the faggot, the other the fire that kindles the flame, and in either case the relation may be traced onwards from its incipiency, to its conclusion. Whatever may be the theoretical aspect of the subject, how-

ever, it is a well known, and simple clinical fact, that after, or during continued exposure to wet and cold, a person may be seized with either tonsillitis or rheumatism, and this is in many cases all we know or is the limit of our knowledge in regard to it.

We surmise, or assume certain things, as to the pathological condition of the blood, and other fluids, whether there is an excess of lactic or lithic acid; but whether this condition originated before or after the exposure, we are at a loss to say,—and we deal with the case according to this theory. If you make a clinical examination of a case of rheumatic tonsillitis you will find no very material or marked difference in the symptioms, and course, from those of an ordinary hyperplastic inflammation of the tonsils. You will find in rheumatic tonsillitis the induration is more marked, the inflammation is less inclined to suppurate, and the induration and thickening of adjacent paritonsillar tissues more considerable. There is also probably more intense pain and suffering, and its fugacity or tendency to shift position is more observable. But otherwise the case proceeds from the chill or chilly sensation and subsequent fever, to induration and resolution, in the same way that an ordinary hyperplastic tonsillitis would do, but is subject to treatment peculiar to itself. Though the differences in these two varieties of tonsillitis, are not very great, it is well to observe them closely. as very much depends on this observation when we come to the treatment. The difference lies in its mode of attack, the peculiarity of the inflammation, the rheumatic element in its composition, and the therapeutics necessary to arrest it.

I would insist then, in the examination of the many cases of tonsillitis that fall to our lot to treat, upon a proper differentiation in each case, that we remember they assume distinct types, as the rheumatic, and that they often have an intimate relation to a distinct affection, and develop in proportion to a general predisposition. All persons are probably to a greater or less degree predisposed to acute rheumatism (though the predisposition is unequal in different persons); as well as to acute tonsillitis,—but we may usually differentiate rheumatic tonsillitis in that it oftener occurs in robust, full-blooded persons, than in the weak, and anæmic, while other types of tonsillitis attack the strumous and delicate, that it is rare in early childhood, and in old age, is more frequent in the working classes than the well-to-do, that it occurs during the cold, damp weather of winter and spring, and in persons who have had attacks of articular rheumatism, in which its disposition to shift its position from one synovial capsule to another, and even to the tonsils was apparent, its severity being in proportion to the predisposition and its duration usually more considerably extended.

Having thus in a preliminary way alluded briefly to the more theoretical aspect of the subject, I will relate the history of the two following selected cases as an illustration of some of the relations of tonsillitis and rheumatism.

P. R., female, 23, single, regular, previously in good health, not subject to frequent attacks, but has had tonsillitis before, never had rheumatism. After exposure to wet and cold, on a very inclement day in March while viewing a procession. was seized next day with a very severe attack of tonsillitis. She had high fever, sore throat, dysphagia, swollen tonsils, almost approximating, intense pain of the throat and fauces, pulse 130, temp. 102.5. On the sixth day the inflammation and swelling had subsided and she was apparently well. Two days after the fever returned, the joints of the wrists and elbows, and then one joint after another became implicated, with the cervical region of the spine, making her quite helpless. She had two severe attacks of heart pang and syncope, and was in imminent danger. The attack continued quite six weeks before convalescence began, when her tonsils swelled and became painful again, though in a milder way than the first attack, when the tonsillar trouble with the rheumatism gradually subsided together, —leaving her in a weakened condition.

M. S., female, married, three children, in fair condition, menstruation regular, subject to subacute rheumatism for years. Suffers mostly during autumn and early winter. Swelling and pain begin first in the joints of the fingers and wrists, and from that beginning several of the joints suffer but not in regular order, somtimes only two or three, sometimes more. She suffers also from tonsillitis, but not always synchronously with rheumatism. If she had an attack of tonsillitis it wards off an attack of rheumatism, or if rheumatism follows, it is milder; if of rheumatism, the tonsillitis does not occur. There is a compensation between them—the tonsillitis especially modifying the rheumatic attack.

I might relate many cases of similar import, where convalescence from tonsillitis has been considerably protracted by a subsequent attack of rheumatism, either acute or subacute, or the reverse, from which it may be fairly concluded that rheumatism may induce tonsillitis, or tonsillitis rheumatism, under conditions favorable to their development.

An analysis of these cases from a pathological or even an anatomical standpoint, is no easy matter. From what we know of rheumatism we are led to believe it is a painful febrile disease whose seat is in the fibrous tissues—the joints, aponeurosis, sheaths of the tendons neurilemma, periosteum, or in the muscles and tendons, and not due to traumatism; or an inflammatory action of such tissues excited solely by external causes, or by a morbid condition of the circulating fluids,

usually demonstrated as an accumulation of the débris of tissue change, or metamorphosis, and principally found in the form of some not well defined acid, as lithic acid, in excess.

There is in the tonsils we may say, as an offset, anatomically, lymph follicles, fibrous and retiform, and peritonsillar connective tissue, which answer in every respect to the fibrous tissue in the joints, and other portions of the body; and if we place the anatomical relations of both in the same category, we cannot be otherwise than struck with the similarity of the symptoms, and course in both diseases. So that in this respect also, the parallel may be drawn in a way not inconsistent with their relation.

As regards the therapeutics of rheumatico-tonsillar inflammation, it would appear that the alkaline treatment is that which is best indicated. The same treatment indeed that is indicated in general acute rheumatism: bicarbonate of potassa, or soda with Dover's powder, salicylate of potassa, or soda, or salol, internally, with a spray of glyceride of borax and carbolic acid, keeping the bowels open and restricting the nitrogenous diet, with acidulous drinks, is all that is generally required in its management.

The termination of the attack is generally uncertain; is often protracted, and is very prone to leave a residual complication.

Thus the relation of tonsillitis to rheumatism may be traced pretty clearly by its etiology, its pathology, as well as clinically and anatomically, and also as regards its therapeutics, and in closing this brief sketch, though I am sure very imperfectly, of their relationship, I present the following conclusions as a review of the propositions I have attempted to make:

1. They have probably the same etiological factors.
2. These are not very apparent, but are doubtless represented by some agents, atmospheric in principle.
3. They are equally liable to the same cause.
4. Which may produce one or the other.
5. Their pathology is similar.
6. Their anatomical elements very nearly related.
7. Their symptoms and course very much alike.
8. Their therapeutics allied in every particular.

THE LOCAL TREATMENT OF SYPHILITIC PHENOMENA.—DR. G. FRANK LYDSTON, of Chicago, says that the obstinate headaches of both late and early syphilis, whether associated with cranial bone lesions or not, are benefited by frictions of the scalp with hydrarg. oleat., 10 per cent. In obstinate cases a blister to the nuchia, followed by mercurial plaster, is quite effective. There are occasional cases of cephalalgia associated with the cachexia syphilitica where the galvanic current is of great service.

REMARKS AND CLINICAL REPORT ON THE USE OF THE WEIGERT HOT AIR INHALING APPARATUS.

Read in the Section of Laryngology and Otology at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY E. L. SHURLY, M.D.,
OF DETROIT, MICH.

In presenting the following brief and imperfect report of the "Weigert Apparatus," I desire only to report progress and suggest certain indications for its further trial, that it may reach its proper level among the armamentaria for the treatment of that dreadful malady known under various conditions as *phthisis pulmonalis*.

Attention has been called before to the inhalation of *hot aerial medicaments* as a remedy; in 1879 I read a paper before the Michigan State Medical Society in which I called attention to a rude apparatus, which I had devised and had been using for some time, to enable patients to inhale a hot balsamic air, with the idea and result of diminishing excessive expectoration. My attention has also been called lately (by Dr. Price Brown of Toronto, Ont.) to cases of individual stokers and molders who have seemed to enjoy comparative immunity from phthisis, notwithstanding strong hereditary and other predisposing causes. The Weigert apparatus, however, is the best and most complete for carrying out such a plan of treatment, and just what its therapeutic value may prove to be is yet a question, for as far as I am able to learn, the highly colored accounts of its successful application do not seem to be borne out here—although perhaps in this country our facilities for experimentation may be meagre, and our conservatism so much greater compared with our old world professional brethren, that their results may not be a fair measure for judgment. It is greatly to be regretted that the apparatus has been *patented* by a *member of the profession*, and that the *commercial* element is so predominating in its introduction to use.

We have been using the Weigert apparatus in Harper Hospital, Detroit, since about March 14, 1889, and, although using it on about twenty patients, more or less, we have only used it in about eight with a constancy and exclusiveness that would serve as a test.

Case 1.—Mrs. S., æt. 39, pneumonic phthisis. Ill since last November; entered the hospital March 16, both lungs involved; right considerably broken down; sputum abounding with myriads of bacilli; patient very weak and emaciated, with hectic fever and anorexia; able to be out of bed only a short time during the day; temperature range, 97° to 99° morning, and 102° to 104° evening. Began administering hot air inhalation by the Weigert apparatus, of ten to fifteen minutes duration twice daily at a temperature of 100° to 110°, increasing duration and

gradually increasing temperature of air to 120°—the highest which could be borne—was obliged to discontinue on account of the discomfort, in the form of pain in the chest and heat of throat, experienced by patient; no rise of temperature followed, and often easier respiration. Died May 29.

Case 2.—B. O'C., male, æt. 29. Family history bad; hemoptysis eight months before entrance to hospital (March 5); in good flesh, some hectic fever, nocturnal sweating, considerable cough and expectoration, containing a few bacilli, some pus, much emaciated, and weakness growing. Examination showed consolidation with softening spots in upper left lung; pulse range from 90° to 110°, temperature from 99° to 101°; not much anorexia. Administered hot air twice, three and four times daily for from fifteen to forty minutes, at a temperature ranging from 120° to 200, the latter temp. on three occasions only; and 180° and 190° on several occasions; the immediate effects were generally good; no untoward signs or sensations following. He left the hospital for the South April 15, improved in every way, since then have not heard from him.

Case 3.—Wm. M., æt. 22. Entered hospital March 7. Been ill with cough, hectic, fever, etc., about six months; habits not good. Consolidation of upper right lung with softening at apex, also consolidated spots in lower right lung; respiration 26 to 30, pulse ranging from 90 to 115, temperature 99° to 102° at times reaching 104°, expectoration containing *no* bacilli. Began inhalations twice a day for fifteen minutes at a sitting, at temperature of 110°, increasing to three or four times a day of twenty to twenty-five minutes each, with temperature sometimes as high as 195° on three occasions. Inhalations seemed to cause nausea and vomiting; inhalations always caused increase of temperature and increase of pulse beat from 5 to 15 beats—temperature was raised from 1° to 3°. April 17, had hemoptysis; hectic fever diminished in frequency, and when he left the hospital, April 18, was stronger, with less cough and expectoration, and better appetite. He is away from here now, but, I hear, improving.

Case 4.—Miss K. McD., æt. 19. Entered the hospital March 19. Family history good; been ill two months with cough, expectoration, and severe hectic fever—looked anæmic; felt weak, and had severe nocturnal sweating and suppression of menses. Examination showed some consolidation and mucous râles over both "upper fronts;" *never had hemoptysis*, considerable expectoration, bacilli. Pulse range 80 to 100, temperature range 98° to 102.5° from 18th to 31st. Hot air inhalations from 100° increasing to 120°, four or five times a day. Discontinued after about ten days, as patient could not stand it, as it caused febrile movement, pain in chest, and breathlessness with nausea. How much was imaginary, cannot say. There was no diminution of bacilli. Is failing.

Case 5.—Miss N. W., æt. 17. Entered the hospital March 15. Healthy, ruddy appearance. Menstruation regular. Been ill one year with cough (on and off) and occasional fever. The illness began with an abscess in axillary glands. No discharge from axilla since November. Two months ago began to have a painful throat, and since one month aphonia. Not much cough or expectoration; bacilli in sputum; larynx swollen in arytenoid region and studded with small ulcers. Consolidation of upper left lung, but no râles; "is up" all day; occasional diarrhœa; pulse range 80 to 110, temperature 97° to 101°; some nocturnal sweating, and considerable diarrhœa at times. Administered inhalations twice and three times daily for about a week when patient could not bear them any longer on account of extreme pain in throat. On account of rapid swelling of larynx had to resort to gavage. Patient left hospital April 26, very weak and emaciated, and died May 24, 1889. This was undoubtedly a case of *general* tuberculosis, with laryngeal disease predominating.

Case 6.—A. M., female, æt. 18. Been ill with cough ten months. Hemoptysis eight months ago, and progressive emaciation, hectic fever, etc., since. Auscultation showed cavities over both upper lungs—more advanced over left. Great expectoration, with bacilli, and diarrhœa very severe at times. Entered hospital April. Pulse range 90 to 130. Temperature 96.5° to 104°, from April 24 to May 31. Respiration 26 to 32. Administered hot air twice to three times daily, from ten to twenty-five minutes at a time—patient could no take it longer. A temperature of 110° to 175° was the highest that could be borne. She took the inhalation well, and, excepting three times when she felt weak, experienced ease and comfort, with diminution of cough, expectoration, and fever. A severe attack of diarrhœa supervened May 3 and has continued, and she has grown rapidly worse, with œdema of feet, and great debility. Will probably live only a couple of weeks longer.

Case 7.—Miss M. D., æt. 36. Been ill three years. First ill with pneumonia. Entered hospital April 27, quite emaciated, weak, but able to be up and about considerably. Considerable cough and expectoration, with myriads of bacilli and pus. Pulse range from 100 to 120, temperature 99° to 102°, respirations 22 to 28. Nocturnal sweating, and chill about every third day—not severe however. Poor appetite, and occasional soreness of throat, and hoarseness. Auscultation showed mucous and gurgling râles all over right lung with loss of vesicular murmur or bronchial respiration, and a large cavity about middle; also mucous râles over "upper left." Hot air inhalations as often as could be borne and as fre-

quent—averaging three times a day probably—with temperature from 110° to 140°. The effects were good except that once in a while she felt too feeble to take them. Did not complain of burning or pain, she has gained a little. There has been diminution of moist sounds in lungs, no change in pulse rate or temperature, no more emaciation or loss of strength.

Case 8.—Æt. 26. Entered hospital May 6. Family history good. Contracted an acute pneumonia six years ago since which time has never been well. Has coughed more or less ever since. Was in South (Tennessee) last winter. Never had hemoptysis. Not very much emaciated but has sense of great weakness. Bacilli in sputum. Auscultation showed bronchial respiration over upper and middle lobes of right lung, and bronchophony in patches. Mucous and sibilant râles over both upper fronts. No evidence of cavities. Pulse rate 100 to 120, temperature 97° to 104°. Began inhalations of hot air May 7. Averaged three séances daily, of fifteen to twenty-five minutes duration with temperature at 110° to 120° (never could bear them higher than 120°). After fourteen days was obliged to stop the hot air on account of exhaustion and loss of appetite apparently produced. Have renewed the inhalations.

I have five cases now under this treatment, in one of which (a very interesting one) improvement seems to follow. We have found it impossible to apply the method for such lengths of time as reported to have been done in Germany; patients *would* or *could* not do it. We have found, however, that healthy persons and those with only chronic bronchial catarrh can bear greater heat of air and for a longer time at a sitting than true phthisical cases. We always close the nasal passage during an inhalation.

We shall continue its use for we feel that it has not yet been thoroughly tested either in this country or Europe.

STOMACH REST AND CLEANLINESS.

Read in the Section of the Practice of Medicine, Materia Medica and Physiology, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY MARY E. BALDWIN, M.D.,
OF NEWPORT, R. I.

Mrs. B. W., aged 52, a widow eight months, came under my observation February 17 of the present year. She was one of five children of good physical parentage, except that the mother had much liver trouble. Mother, one sister and one brother very stout, and one sister has had an immense amount of bilious disturbance for twenty-eight years, with suffering so severe as to suggest bilious colic. Came first soon after first delivery. Infancy and childhood were not attended by any serious sickness, and was not in any sense a delicate child, although she had many "worm" attacks. Was always fond of candy, cake and sweets. Since first pregnancy, subject to bilious turns with severe attacks of pain, which have usually resisted all home treatment and have been relieved by hypodermics. Although morphine was frequently resorted to, the habit never was formed, and it has not been used the past two years. Since early remembrance has had returns of diarrhœa, but never vomited blood, nor passed it by rectum. Married at 18, and soon grew fleshy. Had four children; youngest is 21. Menopause occurred at 50, without any special symptoms, and a year later, eight months before first seen, the shock of her husband's sudden death caused a severe flooding, with no further return. Some fifteen years ago had a tumor—probably urticaria; took medicine for it about five years ago. It disappeared, and patient thinks there has not been a truly well day since that time. Mrs. B. W.'s frame is large and well proportioned; height, 6 feet, and 275 pounds was a usual weight until she began to lose flesh after her husband's death, and the loss continued until the middle of February, when it had fallen to 132. She was a bright, cheerful, and, although so stout, an active woman, until the past five years, at which time she seemed to lose her accustomed vim, often spit up food, and experienced much discomfort from gas in the stomach and bowels. Especially the last two years this train of symptoms grew more marked until the precipitation of actual wretchedness by the shock of bereavement and the exhaustion of a flooding. The eight months previous to the commencement of my knowledge of this case had been attended by the loss of more than half the usual weight. A good appetite stimulated the taking of food, which often came up as soon as swallowed, even causing her to leave the table seven or eight times during a meal. Sometimes food came up sour, again bitter, and usually mixed with a large proportion of slime and phlegm. Never a large amount vomited at one time, and always without retching. Thirst also demanded drink, which gave little relief.

Bowels usually regular, but in January had an evacuation after going four weeks without one. Later went three weeks without any action, and again ten days; each time the attendant suffering was extreme. Urine dark and thick; sometimes could retain, again had to pass frequently. In region of stomach no habitual pain or soreness to touch, but a weary, heavy discomfort and a crowding and distress following food as it went down. Solids and fluids caused equal discomfort, except that hot tea was readily swallowed, but hot water quite certainly induced vomiting. Patient said she could retain ice cream and Valentine's beef with ice, but that milk had not been tolerated in any form. Sometimes distress and gas relieved by soda, and at times ice water stim-

ulated the rejection of gas, with relief. Pyrosis was so abundant, especially at night, that towels were required to absorb the fluid as it came from the mouth and nose.

Sleeps very little until midnight, and after that only in short snatches. Some nights a cough all night, again none, and never in the daytime; no expectoration. Cramps in legs distressing at night, especially in right one. No headache. Loss of interest, flesh, spirit and strength reached such a degree that she was scarcely recognized by friends, and tears came as readily as in former years the brave and cheerful words had done.

Four months ago the general aspect was one of great weariness and weakness, the loss of adipose tissue leaving as shriveled an appearance of skin as is often seen in advanced age with emaciation. Teeth were in good condition, tongue broad and gray, and breath not especially offensive. The throat showed no general thickening of the mucous membrane, but was relaxed, with enlarged follicles. Heart and lungs gave no signs beyond those attendant upon the general depreciated condition. Was unable to detect an enlarged liver or dilated stomach, or any abnormal condition of the urine.

Diagnosed catarrh, gastro-duodenal and œsophageal, and explained the absence of dilatation by the ease and frequency of the stomach's rejecting its contents. Reasoned that cleansing and resting this demoralized stomach might prove of service, cleansing to include strict supervision of what was taken into the stomach, as to quality, quantity and intervals, as well as the removal, at stated times, of the undigested food remaining, with the results of disordered secretion, etc.; rest to include giving the stomach a minimum of actual work, and also preventing reflex weariness by not talking, using arms, or especially by avoiding the dwelling upon the recent affliction, and by rising above the tears and securing as many hours of sleep as possible in the twenty-four. Very fortunately Mrs. B. W. was able to change, for about six weeks, her usual home and surroundings for the home of an intimate friend, who is a most cheerful, devoted and sensible woman, thus securing a most important aid.

At first the stomach tube removed each morning before taking food the contents of the stomach, which consisted largely of mucus as clear and tenacious as unbeaten egg albumen. Twice a day toasted bread, Graham wafers, rare steak, and the white of coddled eggs formed a list from which to choose in very moderate amounts. The first food of the day by the stomach was not taken until noon, this rest being made possible by giving a nutrient enema in the early morning. A second enema in the afternoon with bromide, and a third at bedtime, added further relief to the stomach and secured sleep. The one in the afternoon was not long continued, but the one morning and night has been regularly given to the present time.

After eleven days of daily cleansing it was omitted every other day and some food has been taken at breakfast time whenever the washing has not been indicated. The interval to the present time has not exceeded one week, but has never again been shortened to twenty-four hours.

The diet list has been enlarged from time to time to include tea, chicken, the whole egg, ham, chipped beef, fish, oysters, lobster, freshly boiled potatoes, spinach, asparagus, strawberries and Graham gems. Ice-cream has been indulged in two or three times only to be regretted, as the curds and odor of fermentation at the next washing would testify, and thus far no milk has been allowed, as a few trials gave no encouragement for a repetition. Any new article of food has been first taken at the last meal before a washing, so as to know if any was left undigested.

This patient's progress has been very satisfactory to the present date. Any time of increase of any of the unpleasant symptoms has been directly traceable to the emotions or to tire of mind or body—once by sewing with very long threads, once by over-walking, once by talking over bereavement with a friend not seen for some time.

Now the countenance is bright and cheerful, color good, and 8 lbs. of flesh have been gained. Ordinary walking, driving, church going and lighter housework give no inconvenience. The abnormal thirst and appetite disappeared the first ten days of treatment, and a regular daily evacuation of the bowels has not been missed since that time. Not a mouthful of food has been thrown up since the first washing, but some days "froth" comes up—when measured not to exceed ½ oz. in twenty-four hours.

Nights have been uniformly given up to sleep, and each afternooon a rest is taken—usually a sleep.

Very little medicine has been given. Some digestive aids, bromide in night enema, soda and rhubarb at bedtime, 10 grs. of bismuth after the washing, and small doses of calomel and soda repeated at intervals about comprise the sum total.

Have not been able to make any satisfactory differential acid tests, and had hoped to discover some way of causing milk to be tolerated; still hope to do so as a valuable study for the large class of children and adults that cannot take it. The œsophageal crowding is quite relieved while a plaster can be worn, but it soon causes so much eruption of an eczematous character as to demand removal by the itching and annoyance. This crowding is really the only annoying symptom at this time.

I am not going to give a wearisome detail of further cases, as this one embodies several important points which would only thus be repeated. The matter of the so-called "worms attacks" in

children, with the ever recurring days of fever, vomiting, heavy tongue and foul breath, may receive a moment. The intervals are usually preparatory stages, with the sweets between meals, for the cleanliness and rest which a well stomach says in no doubtful way that it must have. Medicine is given, the gastro-intestinal tract is freed from the accumulation, and the weary round is again entered upon so soon as pampering can tempt. The child may often be reasoned with, hired or coaxed to leave out the dear "plain cookies," ginger snaps, sugared bread, etc., which have ruined his appetite for meals or for proper food between meals. Not many weeks of experience are needed to convince a child of 6 or 8 years that bread and butter are better with an appetite than are cakes without one. I have known so many children improve in color, strength and flesh by this simple means, cheating the months and years out of "worms spells," that I believe an early resort to this plan in the childhood of the patient reported might have prevented the development of that "natural" biliousness which caused so many attacks of gastro-duodenal catarrh after eighteen years of life.

Recently I have observed some aggravated cases of Riggs' disease, and I beg to point out that its accompanying vile and characteristic breath may well be considered a warning of danger; a warning not only to be considered on account of the vitiated air thus presented for inhalation, but also on account of the actual swallowing of the products of fermentation, by which means the morning meal is presented to a stomach ready to vitiate any wholesome nourishment. It is like the unwashed milk-can of the previous day.

THE IMPORTANCE OF EDUCATING OUR YOUTH IN THE PRINCIPLES OF HYGIENE.

Read in the Section of State Medicine at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY LEWIS P. BUSH, M.D.,
OF WILMINGTON, DEL.

One of the greatest difficulties in the way of the successful working of our State Boards of Health, is the want of confidence of the people in the statements which we bring before them of the importance of hygienic subjects. It is so difficult for the people at large to appreciate the truth that danger to health and life are strown thickly around them; that the air they breathe, and the water they drink, which was inhaled and drank by their ancestors, who they believed "died when their time came," and not before, may be deleterious to them; and that many of the diseases which afflict them, and the deaths which remove from them the dearest objects on earth, are not a visitation of Providence, which they could not obviate by any means in their power.

When a tree falls upon one of the family, or a neighbor, or the mangled body of a friend or relative is carried home from beneath the wheels of a railroad car, it is easy for them to appreciate both cause and effect. But when they are told that the clear and sweet water which they draw from their well, or the effluvium from a mass of decaying vegetable matter, or from an old stagnant pond, is gradually introducing into their systems a malign agent which will sooner or later induce disease, and will surely reduce the term of their life, they retreat within their old covert, declaring that they can neither see nor feel the force of our protestations; and cast aside the pamphlet as containing the lucubrations of one who has made a hobby of the subject, and declare or resolve that they are not to be scared or humbugged by such fanciful ideas. Is not this true as a rule? I am sure it is true; and that it is occurring every day in every part of our country. People have been so long impressed with the notion that death is a visitation from God, and that He sends their diseases among them, instead of referring them to their own ignorance or carelessness, that it is no easy matter to convince them that they are in error, that these new notions are worthy of their most serious consideration, and that they are second only to the care of the health and life of their soul. Every one who has given thought to the subject knows how difficult it is to root out old prejudices existing among the people, and to implant new and opposite views; and that this is the reason why we are so subject to be disregarded in our efforts to do them good.

What then shall we do? for it must be apparent to all interested in our State Boards of Health that we progress slowly in our efforts to indoctrinate the people with hygienic truths. Even a large part of our physicians believe that it is not *their* mission to prevent, but to cure, disease; and they give hygiene only a passing look, and the people think none the worse of them for it. It seems to me that we must begin at the beginning; we must give the subject of health a much more important place in our public and private schools; early implanting in the minds of the children the knowledge of the value of health, and of the means of preserving it, by putting into their hands such books as will bring before them not merely the anatomy and physiology of the human system, but still more, the principles which are requisite to preserve the vigor of mind and body, and which will warn them against the deleterious agencies which lie concealed both in air and water, and which are the cause of more deaths than all other occult agencies together.

As far as I know, this subject has not attracted as much attention in our health associations as it deserves; and from various instances which have

come under my observation, I have been led to present these thoughts for the consideration of this Section.

There must be a widely disseminated conviction of the truths upon which our Boards of Health are founded before we can hope to elevate the status of the health of our communities to the point which we desire. It must be strong enough to supplant the prejudices above alluded to, which have an abiding presence in the minds of the people; and this can only be effectually done by the means here suggested. I do not say that our Boards of Health have been failures; on the contrary, they have been of great and inestimable value in educating the better part of our communities, and are gradually taking a deeper hold on their conscientiousness. So we must labor on, not relaxing anything already gained, as in all our efforts to bring up the people to a higher plane in any improvement of their condition, we constantly find great cause for discouragement where we expected sympathy and assistance. We need only to refer to the retrograde movement in Boston, when the efficient State Board of Health was disbanded, and the venerable Dr. Bowditch, with all his valuable experience in hygienic matters, was supplanted, and the efficiency of the system embarrassed by that which was substituted.

The wisdom of our legislators does not always extend into the invisible; they can forecast a loss of political influence and power—or they think they can; though even here in their favorite haunts their wisdom sometimes proves to be folly—so when everything around seems quiet, and no pestilence threatens immediately, and death seems to have fled to some other sphere, they demur when you ask them to assist in executing plans for the prevention of disease, because they can't see the immediate propriety of such action. The enactment of a law on this subject brings no votes, and the rejection of it loses none; and hence they easily postpone the matter indefinitely. Why? Because constituents care about as little for the law as do their representatives. If the people were as well educated and impressed with the inestimable value of our subject as they should be, or as they are in regard to the value of their business affairs, there would be a different set of men, and a different course of legislation; and this subject, instead of being the last to be thought of, would take its proper place on the list of the legislative bills.

It is not my wish to advance any opinion upon the merits or demerits of the various books which have been produced as proper for the instruction in hygiene in our schools, except in a general way.

When the subject of physiology was first introduced into our higher schools, it was mainly confined to the scientific exposition of the structure and functions of the human body; leaving the application of the principles there set forth to the discrimination of the pupil, as circumstances might arise in the future. This was well as far as it went, and it was all that the times demanded; but in the present progressive stage of hygienic knowledge, it has become evident that this kind of exposition is insufficient. That class of books ought, therefore, to be discarded, and others possessing the proper requirements be substituted. There are such to be obtained, which set forth the laws of health, and which should be commended to school boards, should be heartily appreciated by the teacher, and should have no secondary place in the curriculum of studies. When this takes place, we may expect the next generation to be ready to uphold the hands of those who are endeavoring to forward this beneficent movement.

In advancing this cause there is no class of men who have more influence than physicians, and hence whenever that influence can be brought to bear upon our school directors, it is plainly our duty to exert it in whatever way seems most practicable for accomplishing the desired purpose.

A CASE OF PAINFUL SUBCUTANEOUS NEUROMA (NEURO-FIBROMA).

Read in the Section of Dermatology and Syphilography, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY J. ABBOTT CANTRELL, M.D.,
OF PHILADELPHIA.

Jack C., 29 years of age, was born, and has always lived, in New Jersey. He is a farmer by occupation, although obliged to retire temporarily at times, on account of the distress in the arms. His previous health was always excellent, and with the exception of a sister, his family have never presented a similar disease.

He noticed, for the first time, about fourteen years ago, a small round nodule on the left arm, accompanied with intolerable itching, but without pain. This nodule increased in size, slowly but steadily, reaching its present dimensions in about four years, by which time there four new and smaller lesions in the same vicinity. In eight years after the appearance of the first nodule a solitary lesion was noticed on the right arm correspondingly, which in four years was accompanied by five others. The man does not know exactly when the pain first began, but believes it was between four and five years after the appearance of the first tubercle.

This man presented himself for treatment at the clinic in April, 1889, showing the lesions on both arms about midway between the tip of the shoulder and a point corresponding to the insertion of the deltoid muscle, being grouped on each arm, those on the left arm being five in number, the larger occupying the centre of the group,

and being the size of a pea, while the others surrounding it were about the size of a pin's head.

Those on the right arm were similar in size, but there were five surrounding the central figure. The lesions are separated, one from the other, by about 5 or 6 lines. They are firmly situated in the skin and movable only with it. They certainly must run down into the subcutaneous tissue. They are elevated between 2 and 5 lines above the surrounding skin; the skin covering them is tightly drawn, being very smooth and shining brightly. The epithelium seems intact. The skin over the top of the larger lesions is of a yellowish pink, while at the base it is almost a purple; the smaller lesions are normal at the base but yellowish at the summit. All the lesions are perfectly round, the larger one looking as if a pea had been placed under the cuticle and was holding it out beyond the surrounding skin.

Surrounding the lesions the skin looked entirely healthy, there not being a single dilated capillary visible, as might have been expected.

At the appearance, and during the continuance of the pains, there was no change of color, although the part became warmer than usual, remaining so for a short time after its subsidence. Cold and heat, from what I could learn, did not affect him in the least, but if slightly touched a great amount of pain was experienced. There is surely a deep connection with a branch of the brachial plexus.

The pains, for which trouble he applied for treatment, were of a paroxysmal nature, and constituted the whole distress. They began by appearing slowly about four years after the appearance of the first tubercle and got worse as the disease progressed. I did not see him in any of the paroxysms, but from what he says I could readily imagine the greatest torture. The pains at times resembled an aching tooth, beginning with a throbbing sensation, and getting gradually worse, at last giving several great jumps almost causing him to fall to the floor. These pains lasted from fifteen minutes to one-half hour, but were quite frequent during the day, and always worse at night, which only happened once or twice a week. The friction of his wearing apparel kept up a continual pain throughout the day, and at night the bedclothes could not be borne on the arms. When suffering from the worst pains he is oblivious to what is transpiring around him. If perchance the lesions be violently struck, or the arm be given a sudden jerk, the spot feels as if a sharp pointed instrument had been inserted, almost causing syncope, while the pain would last several hours; in fact, sometimes lasting all through the day—causing him to be constantly on the move and trying to forget it by the best possible means. If the lesions are handled slightly, as when examined, there is considerable pain.

He says he dislikes to go to bed on account of not being able to lie on either side, and fearing to lie on his back, lest in a moment of restlessness he may turn over on either arm, and be awakened suddenly as if he had been struck a sudden blow, so on account of this, when the pains were at their worst he occupied a large armchair and a footstool.

The day preceding a storm he feels very restless and uncomfortable, but on the appearance of the storm he is no worse. He feels very comfortable in settled weather, be it warm or cold.

In a careful search of the literature of the subject, I was only able to find four cases that present any similarity to the case of to-day—those of Duhring, Kosinski, John Ashhurst, Jr. and Jonathan Hutchinson, Jr. Most of the other and previous cases I feel are examples of the "painful subcutaneous tubercle."

Duhring's case, a man 70 years of age, first noticed the disease ten years previously; it occupied the left scapular region, shoulder, and the outer side of the left arm as far down as the elbow, completely covering these parts.

Kosinski observed it in a man 30 years of age, who noticed it for the first time when 16 years of age, when it occupied the posterior and outer side of the right thigh, as far down as the lower third, and a portion of the buttock. There were as many as a hundred lesions.

In 1883 John Ashhurst, Jr., amputated the thigh between the middle and lower third. The flaps sloughing, a reamputation was necessary. Within a year, a small lump, tender to the touch, appeared in the skin, posteriorly and a little to the outer side of the stump.

Jonathan Hutchinson, Jr., reports a neuroma of the parotid in a girl 20 years of age.

I had hoped to-day to show microscopical sections of my case, but the man proving obstinate, would not allow me the privilege, so I will make the best of the bargain by giving the microscopical reports of the other cases, and show by them the fibroid nature of all these cases.

That of Duhring showed the "corium to be infiltrated with a new connective growth, which was firm in structure. The tissue, beneath and in the mass of the specimen, consisted of a solid, resistant-looking connective tissue, irregularly developed and uneven in arrangement. The bulk of the tissue was old in appearance and fitted together, the new cell elements being entirely wanting, the connective tissue fibrils being closely packed in places, forming wave-like bands. There were also numerous free fibrils of elastic tissue scattered here and there, and there were no nerve trunks or branches found in the mass."

In Kosinski's case, "the mass showed a consistence of gray nerve fibrils with a great quantity of a dense fibrous tissue, interspersed with some connective tissue."

Ashhurst found "interiorly in the tumor a somewhat elastic, rather dense-looking growth of

whitish color, over which passed yellowish fibres, probably strands of the scaled nerve. Microscopically the interior showed an entire absence of nervous elements and a section exhibited fat cells, abundant fibrous tissue, some spindle cells and numerous free nuclei near the enlarged and dilated blood-vessels."

Hutchinson came to the conclusion, after a very exhaustive examination, that his case was undoubtedly of a fibroid nature, while it consisted of connective and a quantity of fibrous tissues.

With a summary of these four cases, all of which showed in their microscopical examinations a structure consisting of fibrous and connective tissues, resembling those of the human body, also all sections of heretofore examined fibromatous tumors, I cannot but feel that to place them with the fibromata would certainly be to place them where they belong—calling them neuro-fibromata.

A CASE OF ACUTE RHEUMATIC LARYNGITIS OF GONORRHŒAL ORIGIN.

Read in the Section of Laryngology and Otology, at the Fortieth Annual Meeting of the American Medical Cssociation, June, 1889.

BY W. K. SIMPSON, M.D.,
OF NEW YORK.

I present the following history on account of the apparent rarity of the case, and in so doing hope to add somewhat to the meagre literature of the subject. In the perusal of recent literature, and the reports of various throat clinics, and from inquiry among medical friends, I have been unable to find any reference to a similar case, thus convincing me that it is in some respects unique, and that the involvement of the larynx in acute gonorrhœal rheumatism is an extremely rare occurrence.

Sigimund H., æt. 23, single; Poland; cigarette maker; was first seen by me on February 23, 1888, at which time these notes were taken. He has had three attacks of gonorrhœa, the last one being five weeks ago; there is some urethral discharge at present. Three weeks ago he complained of pain and stiffness in the left knee, which shifted to the right knee, and then to the left hip, rendering locomotion very painful. Three days ago pain and swelling began in the left thumb, extending to the anterior surface of the wrist and back of the hand; and at the present time these parts present the typical swollen appearance of acute rheumatic inflammation.

The throat symptoms began three days ago, in the morning, with painful deglutition; and on the following morning there was a swelling over the lower external portion of the larynx, which swelling, at present, has disappeared. The swelling was very painful on pressure, especially on the right side. In the evening the patient became hoarse, and any attempt at talking was very painful.

Examination of the throat to-day reveals painful deglutition; pain on pressure over the right side of the larynx; almost entire loss of voice; no cough. Internally, both arytenoids are swollen and red, the right one much more than the left, being also slightly œdematous, resembling tubercular laryngitis, and is, along with the right vocal band, immobile on phonation. The whole of the mucous membrane of the interior of the larynx is hyperæmic, the left vocal band being slightly injected, while the right vocal band is swollen and of a deep purple color.

Treatment consisted in placing the patient on sodium salicylate, gr. xv every two hours, and applying a saturated solution of sodium bicarbonate to the wrist-joint.

From Feb. 23 to 28 there was no improvement in the throat symptoms; swelling was increasing and breathing was becoming embarrassed. On Feb. 28 iodide of potash internally was substituted, and on Feb. 29 a blister was applied over the right side of the larynx, which caused improvement in the laryngeal swelling. This improvement continued, and on March 6 the swelling was entirely reduced, and the voice was very much improved; but there was still very little motion of the right arytenoid and right vocal band, and the color of both was still very red.

MEDICAL PROGRESS.

TREATMENT OF ERYSIPELAS BY ANTISEPTICS.—M. JORISSENNE finds that in erysipelas the streptococci are so deeply seated that it becomes necessary to employ fatty substances as excipients in order to secure more prolonged contact of the remedies employed. For this purpose lanoline is unsuitable because it increases friction; vaseline prevents absorption; lard increases cutaneous irritation. The reporter therefore employs a mixture of cacao butter and vaseline as a suitable and convenient excipient. The most reliable antiseptic is sublimate, with which the reporter has achieved constant success in the erysipelas of the head occurring in newborn babes and complicating meningitis, as well as in the gangrenous erysipelas affecting the scrotum of old men, and in adults generally.—*Le Bulletin Médical.*

TREATMENT OF GASTRIC NEURASTHENIA.—In the treatment of dilatation of the stomach, according to DUJARDIN-BEAUMETZ, there are two principal indications: the one is addressed to the gastro-intestinal disturbances, the other to the condition of the nervous system. To fulfil the first of these indications there are two plans of treatment: the first comprises intestinal antisep-

sis; the second includes various mechanical methods of treatment which act directly upon the stomach.

Intestinal antisepsis has for its object the prevention of the development of toxic substances in the digestive tube, and is accomplished by pharmaceutical means, by laxatives, by washing out the stomach and intestines, and by a properly chosen regimen. The following measures should be observed:

1. The patient should take one of the following cachets at each mealtime:

Salicylate of bismuth	āā 10 grm.
Magnesia.	
Bicarbonate of soda.	

For 30 cachets.

If the trouble is very far advanced:

Salicylate of bismuth	āā 10 grm.
Naphthol (a)	
Magnesia.	
Bicarbonate of soda.	

For 30 cachets.

2. At bedtime the patient should take a dessertspoonful of the following in half a glassful of water:

Senna pods (treated with alcohol) in powder	āā 6 grm.
Sublimed sulphur.	
Powdered fennel	āā 3 grm.
Powdered anisum stellatum. . .	
Pulverized cream of tartar. . . .	2 grm.
Powdered licorice.	8 grm.
Powdered sugar.	25 grm.

When the powder does not produce the desired effect, or is not well borne, the patient should take a liqueur glassful of Rubinat or Villacobras water every morning, or else a dose of podyphyllin or cascara. If there is considerable dilatation the stomach should be washed out; and if it contains putrid matter, disinfecting solutions should be employed, such as boric acid, 10–1000, or naphthol (a), 1–1000.

3. The cold douche should be applied to the spinal column every day for not longer than 15 seconds (if the patient is a lady, the feet should be douched with hot water, and after the douche dry friction should be vigorously employed).

4. Open-air walks and muscular exercises are favorable.

5. The following dietetic points should be carefully observed: At least seven hours should intervene between the two principal meals, which should be eaten the first at 10 or 11 A.M., the second at 7 P.M.; neither food nor drink should be taken between meals; diet should consist chiefly of eggs (underdone), purées of potatoes, haricots, lentils, revalescière, racahout, lactated farina, panada, rice, maccaroni, green vegetables well cooked (purées of carrots, turnips or peas, Julienne soup, cooked salads, spinach), finally, stewed fruits, except grapes or strawberries; game, fish, shell fish, cheese, and all foods that are too liquid, particularly thin soups, should be excluded; bread should be toasted; as for drinks, nothing should be taken except 300 grm. of a mixture of white wine and water, but no effervescing drinks, no undiluted wine, and no liquors should be takeh. It may be remarked that wine of cinchona, such as is frequently given as a tonic to patients with dilatation of the stomach, is more injurious than useful.

The mechanical methods of treatment referred to include Glénard's pelvic bandage—a broad elastic bandage which is strapped over the abdomen—massage, and electricity.—*Gazette Méd. de Liége.*

A NEW METHOD OF SKIN-GRAFTING.—DR. FRANZ BUTTGENBACH (*Gaz. Méd. de Liége*) reports a case in which he adopted a new plan of skin-grafting. The case is as follows: S. H., of Liége, æt. 61, was admitted on the 28th of November, 1889, to the *Hôpital des Anglais* with an indolent ulcer of two years' standing, situated upon the lower portion of the left leg. This ulcer measured 22 × 14 centimetres. The patient requested a cure or an amputation. The ulcer was disinfected with carbolic acid and dressed with iodoform gauze, and the patient ordered to remain in bed. When the patient had been in bed a few days the wound began to show signs of healing, a zone of cicatrization forming. One day, while dressing the ulcer, a little grayish-white point was observed in the midst of the ulcerated surface; this seemed to be a mass of new cells, transported probably by the solution or by the gauze. The idea was then conceived of transplanting some of these new cells from the zone of cicatrization by means of a bistoury. Success attended the effort made. Every five or six days little islands of cells were transplanted to the centre of the wound, and these were protected by a sheet of gutta-percha covered with a carbolic acid dressing. At the end of a month the ulcer was perfectly cicatrized and the patient was discharged early in January, 1890.

ACCOUCHEMENT AFTER EXTIRPATION OF THE SACRUM.—LIHOBZTKY reports a case in which, after he had performed Kraski's operation for cancer of the rectum, the patient recovered and, becoming pregnant, gave birth to a living child weighing nearly 9 lbs. It was of interest in this case to observe the mechanism of labor, which was normal, and in the absence of the sacrum was under the influence of the muscles and ligaments of the pelvic floor. Delivery was normal, proving that in multiparæ or women with large pelves the presence of a resistant pelvic floor is not indispensable to the rotation of the occiput. —*Gaz. de Gynécologie.*

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE.
PER ANNUM, IN ADVANCE.....$5.00
SINGLE COPIES.....10 CENTS.

Subscription may begin at any time. The safest mode of remittance is by postal or express money order, drawn to the order of THE JOURNAL. When neither is accessible, remittances may be made at the risk of the publishers, by forwarding in REGISTERED letters.

Address
JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WABASH AVE.,
CHICAGO, ILLINOIS.

All members of the Association should send their Annual *Dues* to the *Treasurer*, Richard J. Dunglison, M.D., Lock Box 1274, Philadelphia, Pa.

LONDON OFFICE, 57 AND 59 LUDGATE HILL.

SATURDAY, APRIL 12, 1890.

LAPAROTOMY IN THE AMPHITHEATRE.

One of the evil effects of the introduction of antiseptic methods was the removal of abdominal sections from the public clinics of our hospitals. Students were unable to familiarize themselves with the operative details, practitioners were left to entertain fear and distrust of methods they could not understand, while aspiring surgeons were often obliged to do the operations themselves, in order, through an expensive experience, to master the details.

This evil, we are glad to say, seems about to be removed. At a recent meeting of the Chicago Gynecological Society DR. CHARLES T. PARKES reported thirty laparotomies that had been performed at the clinic of the Presbyterian Hospital, in the amphitheatre, during the past two winters. The list of organs operated upon included the liver, pancreas, stomach, kidneys, uterus, ovaries and Fallopian tubes; yet only four deaths were recorded. DR. HENRY BYFORD reported ten laparotomies performed in the amphitheatre of St. Luke's Hospital, before the regular clinical class, during the past three winter sessions, of which all recovered. DR. GOODELL has also reported a number of such operations in Philadelphia during the past two winters, with the best of results. In the discussion the natural antiseptic powers of the peritoneum were enlarged upon, they being considered sufficient to counteract the danger of air infection under all ordinary circumstances. Dr. Parkes called attention to the fact that all possible precautions had been taken to avoid contact infection, either from the patient's parts or from the assistants, and to this he attributed his success. The explanation was very timely, since reports of this character taken in connection with the avowed abandonment of antiseptics by some others, might lead many inexperienced operators to belittle the dangers of sepsis.

Indeed, it is this very error that will be counterbalanced by such clinics. In no other way can the average medical student study so well the details of preparation and management as by seeing the patient and hearing them frequently repeated at the operating table; neither can he otherwise appreciate the vast difference between the simple and complicated operations, recognize the extreme care necessary in all cases, acquire a knowledge of the difficulties likely to arise, and learn what the peritoneal cavity will tolerate and what not, just how to leave the wound with regard to drainage, ligatures, tampons, etc. It prepares him to recognize the conditions and indications in practice, gives him a preliminary training to a subsequent post-graduate course, and points out the straight and narrow road to success in abdominal surgery.

If further experience shall demonstrate the comparative safety of laparotomy in the amphitheatre, an open door will more and more invite to the clinics those who desire thus to profit from practical demonstrations.

THE GERMICIDAL ACTION OF THE BODY FLUIDS.

One of the principal difficulties in the way of the acceptance of the Listerian doctrine in regard to surgical infection has always been the fact that wounds, even when of considerable extent, may heal witout any evidence of the omnipresent bacteria, notwithstanding the absence of all antiseptic precautions. It is true that the results in this respect are seldom so perfect as when antiseptic treatment has been successfully applied. A little redness and swelling along the line of union, a few drops of pus around the stitches, are seldom wanting. Still, the fact remains that inflammation may, in such cases, be entirely absent. HUNTER distinguished between what he termed healing by first intention, in which, the surfaces being brought into perfect apposition, direct union took place between them without inflammation, and healing by adhesive

inflammation, in which as he believed, on account of imperfect contact, the surfaces were united by a layer of "coagulable lymph." The distinction has been rather generally lost sight of by surgeons, and it has been customary to class all wounds healing without suppuration together as cases of union by first intention. PAGET, however, in his "Surgical Pathology," discusses the whole subject very fully, classing the two sets of cases as "immediate union" and "primary adhesion" respectively. Even supposing, what does not seem probable, that wounds which heal by immediate union have escaped contamination, those which heal with inflammatory symptoms present at least equally great difficulties, as it is not easy to see why the process, once initiated, should ever come to an end.

It has been customary to account for such facts as these by the hypothesis, which seems probable enough, that the living tissues have a power of resisting the attacks of microörganisms. This view, satisfactory as far as it goes, is still rather vague, and, granting its correctnees, the *modus operandi* has not, hitherto, been discovered. It must, therefore, be regarded as a welcome addition to our knowledge that recent investigations go to show that the fluids of the body, in their fresh state, not only present an unfavorable soil for some, at least, of the pathogenic organisms, but possess a certain degree of antiseptic power. NUTALL appears to have been the first to discover that fresh blood serum is fatal to many forms of bacteria. His observations have been confirmed and extended by others. It appears that the blood-serum of various animals is deadly, in different degrees, to the anthrax, cholera and typhoid bacilli, but not to the staphylococcus pyogenes aureus,—the most common excitant of suppurative inflammation. This property is lost in time; it is destroyed by heating to a temperature of 55° C. (121 F.), is diminished or abolished by a solution of the red corpuscles, and is due to the albuminoid constituents of the serum.

DR. T. MITCHELL PRUDDEN, in the *Medical Record*, January 25, 1890, gives the results of some experiments of his own, with a synopsis of the literature of the subject. His experiments, made with cultures of the typhoid bacillus and staphylococcus pyogenes aureus in the blood of various animals confirmed the results of previous investigators mentioned above. In addition he found that similar properties were shown by fresh ascitic and hydrocele fluids; the liquor amnii of the pig, on the contrary, proved to be an excellent culture medium for the typhoid bacillus.

The staphylococcus in Dr. Prudden's experiments, seemed to be affected in much the same way by the ascitic and hydrocele fluids as by distilled water. In most cases the numbers were diminished to a certain extent, and the increase, where there was any, was slight. This would seem to show that such fluids, although not fatal to the pus-producing organism, are not, in the fresh state, as has heretofore been supposed, favorable to its growth, and would thus explain the absence of suppuration in wounds in which apposition is so close as to allow union to take place before the exudation has had time to stagnate. So long as the bacteria can be kept inactive, it is probably of little consequence whether they are living or dead.

THE ANATOMY BILL IN THE DISTRICT OF COLUMBIA.

It is a matter of surprise that a body of men as intelligent and as worthy of respect as is the American Congress should, until this hour, make demands of the medical profession, the fulfilment of which involves the commission of crime.

Over the signature of the HON. WM. C. ENDICOTT, Secretary of War, we have as one of the requirements, on the part of persons desirous of entering the Medical Corps of the U. S. Army, "*the performance of surgical operations upon the cadaver.*"

Over that of the HON. WILLIAM C. WHITNEY, Secretary of the Navy, one of the prerequisites to admission to the Naval Medical Corps is that of "*surgical operations upon the cadaver.*"

SUPERVISING SURGEON-GENERAL HAMILTON of the U. S. Marine-Hospital Service in this connection says: "I would not consider any man qualified to practice medicine or surgery, who has not dissected the usual number of bodies required by the regulations of our medical colleges." And yet, to-day, in the District of Columbia, to provide the material necessary for such demonstrations is a felony. Such inconsistency needs only to be properly brought to the consideration of that intelligent body, to secure from Congress the legislation which justice demands.

In the language of PROFESSOR A. F. A. KING, Dean of the Medical Department of Columbian University, "the experience for centuries in Europe and many years of experience in a considerable number of the States of the Union, have amply demonstrated that suitable legislation, such as is contemplated in the pending bill, will meet the required demands."

In at least sixteen of the United States, laws have been enacted, providing for the delivery of unclaimed dead bodies to the medical colleges for dissection, and yet in the District of Columbia, there is no legal sanction for the study of anatomy.

It is obvious that if in the metropolis of the nation the study of medicine is to be encouraged, such legislation as the Bill now before Congress contemplates must be had. Not only is it needed, that justice to the medical profession may be done, but because the most sacred interests of the people are still more involved.

There is no disguising the fact that, in the absence of statutory law, every grave within the District is imperiled, while the passage of this Bill will grant to every grave protection. We sincerely hope that the Bill will soon become a law.

WHERE IGNORANCE IS BLISS, 'TIS FOLLY TO BE WISE.

Is this the logical conclusion which we are compelled to receive as the deliberate deliverance of the august Senate of the Empire State, in this year of our Lord, 1890?

Is ignorance at a premium in New York? In the survival of the fittest does illiteracy need protection? Evidently the promoters of this repeal have an eye to revenue, and it may be that this is a tariff, or rather "free trade," for revenue only.

The Act of 1889 requires intending medical students to satisfy examiners under the authority of the State Regents, of their preliminary education, in *Arithmetic*, *Grammar*, *Geography*, *Orthography*, *American History*, *English Composition*, and the elements of *Natural Philosophy*. And could anything be more reasonable than that a medical intendent should be thus far qualified to enter upon the study of his profession?

Now comes the pronouncement of this sage body of Legislators, that this amount of preliminary education is too much to be required of any man, and they propose its repeal. We deeply sympathize with those noble men of the great State of New York, in that their efforts through many years to promote and to elevate the standard of medicine in that State, should meet with such result, and that they should suffer the humiliation which the rescinding of the present law necessitates. It is to be hoped that in the Lower House better counsels will prevail, and that the Governor of the State will not be called upon to sign a bill rescinding the very Act which by his signature became operative two years ago. We sincerely hope that in the near future the promoters of this retrograde movement may be clearly pointed out, and the animus of their action be laid bare.

Let the other States move steadily and strongly on in the grand work of advancing the standard of medical education, and we have faith to believe that the good sense of her people will hold that grand old State, in which, hitherto, it was our pride to have been born, firmly to the purpose of medical reform, and that in the end in nothing will she be found behind the chiefest.

EDITORIAL NOTES.

HOME.

PROF. GEORGE H. ROHÉ has been appointed to the honorable and responsible position of Commissioner of Health for the City of Baltimore. He will bring to the accomplishment of his work experience, culture, and rare executive power. The city is to be congratulated for this selection.

PRECAUTIONS AGAINST FIRE IN HOSPITALS.—The disastrous conflagration which befell the Presbyterian Hospital in New York, has had this compensation that it has stimulated the authorities of some of the older hospitals to an inspection of their fire-escape provisions. A systematic fire-drill has been put in practice in the case of some of them, and other precautions have been devised to prevent a loss of life in the emergency of a fire. The construction of not a few of these institutions has been faulty from their inception, from an apparent ignoring of the possibility of such an accident.

ADDRESSES OF THE SECRETARIES.—As inquiries are frequently made for the names and

addresses of Secretaries of various Sections, we again publish the list:

Practice of Medicine.—Dr. H. McColl, Lapeer, Mich.

Surgery and Anatomy.—Dr. Jno. Blair Deaver, 120 South Eighteenth street, Philadelphia, Pa.

Obstetrics and Diseases of Women.—Dr. Joseph Hoffman, 126 W. Diamond St., Philadelphia, Pa.

State Medicine.—Dr. S. Bascom, Salt Lake City, Utah.

Ophthalmology.—Dr. E. J. Gardiner, 70 Monroe street, Chicago, Ill.

Laryngology and Otology.—Dr. Frank H. Potter, Buffalo, N. Y.

Diseases of Children.—Dr. E. F. Brush, Mount Vernon, N. Y.

Medical Jurisprudence.—Dr. T. D. Crothers, Hartford, Conn.

Dermatology and Syphilography.—Dr. Wm. T. Corlett, Cleveland, Ohio.

Oral and Dental Surgery.—Dr. E. S. Talbot, 125 State street, Chicago, Ill."

THE oldest surviving medical graduate of the University of Pennsylvania is said, by the *Medical News*, to be Dr. James Kitchen, of Philadelphia. He was graduated in the class of 1822, when he was 22 years of age. He is now in his 90th year, and has been sixty-eight years in the practice of his profession.

THE THIRTY-THIRD ANNUAL MEETING OF THE MEDICAL ASSOCIATION OF MISSOURI will be held at Excelsior Springs, Clay Co. Mo., May 6, 7, and 8, 1890. L. I. Mathews, President; I. C. Mulhall and Joseph Sharp, Secretaries.

The Committee on Arrangements confidently expects to get reduced railroad rates from all points in Missouri and Eastern Kansas, and will publish the particulars in the April numbers of the medical journals of the State, and THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. "The Elms" will charge $2 a day, and can entertain four hundred guests. Rooms in cottages can also be had at reasonable rates. Although the meeting of the American Medical Association at Nashville, May 20, necessitated the change of time to May 6, 7 and 8, 1890, the meeting at Excelsior Springs promises to be one of the pleasantest and most profitable ever held by the Association. One admirable feature will be that their wives and families may accompany the members and share in their amusement and recreation.

THE SOUTH-WESTERN OHIO MEDICAL SOCIETY under the Presidency of Dr. Read L. Bell, will hold its semi-annual meeting at Springfield, O., on Thursday and Friday, April 17 and 18. A goodly number of excellent papers are announced, and the sessions promise to be of marked interest. All regular physicians in that section of the State are cordially invited.

NATIONAL ASSOCIATION OF RAILWAY SURGEONS.—We desire again to call attention to the fact that this Association will hold its next annual meeting in Kansas City, Mo., on May 1, and will be in session three days. The meeting promises to be one of special interest, and a full attendance is anticipated. Dr. J. H. Duncan, of Kansas City is Chairman of the Committee of Arrangements.

STATE MEDICAL SOCIETY OF ARKANSAS.—The Fifteenth Annual Meeting will be held at Little Rock, Ark., Wednesday, Thursday and Friday, May 14, 15, and 16, 1890. The preliminary circular with its lists of Committees is published, and a meeting of medical interest is anticipated. The President is Dr. Zaphney Orto, of Pine Bluff. The Secretary is Dr. L. P. Gibson, of Little Rock.

MEETINGS OF STATE MEDICAL SOCIETIES.—The annual meetings of State Medical Societies to be held during the month of April are announced as follows:

Alabama, Birmingham, April 8; Florida, Ocala, April 8; Tennessee, Memphis, April 8; California, Los Angeles, April 15; Georgia, Brunswick, April 16; Iowa, Des Moines, April 16; Mississippi, Jackson, April 21; Maryland, Baltimore, April 22; Texas, Fort Worth, April 22; South Carolina, Laurens, April 30.

Those to be held during the month of May are as follows:

Illinois, Chicago, May 6; Kansas, Salina, May 13; Louisiana, Baton Rouge, May 13; Nebraska, Beatrice, May 13; Arkansas, Little Rock, May 14; Indiana, Indianapolis, May 14; Kentucky, Henderson, May 14; Washington, Spokane Falls, May 14; Michigan, Grand Rapids, May 20; Missouri, Excelsior Springs, May 20; North Carolina, Oxford, May 27; Connecticut, New Haven, May 28.

TOPICS OF THE WEEK.

REPEAL BY THE NEW YORK SENATE OF THE BILL REQUIRING PRELIMINARY EDUCATION OF MEDICAL STUDENTS.

The following from the pen of a distinguished member of another profession, Hon. St. Clair McKelway, recently a guest of the New York State Medical Society at Albany and then, as on other occasions, an outspoken advocate of higher medicine, deserves the serious consideration of every member of the profession of medicine in the United States, especially on the eve of the annual meeting of its greatest representative body, the American Medical Association, which may well make it its business to inquire how far the allegation is true that medical schools are themselves the instigators of the repeal of the Act requiring the examination of intending medical students as to their fitness to undertake the study of a profound science like medicine, before that Act has been a year in force:

A BILL TO ALLY ILLITERACY AND MEDICINE.

A bill has lately passed the State Senate to repeal the Act of July 13, 1889, requiring intending medical students, in advance of their entrance upon their medical studies, to undergo the examination in academic studies conducted by the State Board of Regents. Without such a law there would be few or no restrictions upon anyone becoming or trying to become a physician. All that would be necessary would be attendance upon a lecturing course or two and the securing of a diploma of graduation from medical colleges, which have a money interest in fees in corraling and passing as many students as possible. The law which it is proposed to repeal requires a fair degree of elementary knowledge of intending medical students. It creates a standard for entrance into the studies of the profession, and it bars from entrance into the profession such as cannot conform to the standard. It is a partial protection of the public from medical ignorance, graduated incompetency and licensed quackery. The motive of the Act was undoubtedly excellent. In actual operation for less than a year, the law has certainly produced no results to bring it into condemnation, and has probably not produced a sufficient number of results to determine its full capacity for good. Less than a year is too short a time for an experiment in statutes to be summed favorably or unfavorably. It should have a longer life to enable final judgment intelligently to be passed upon it. Any allegation, therefore, that the law has been a failure, or that it has yet been a great success, would be unfounded because premature.

No one, however, need be at a loss to explain why a bill repealing it has passed the Senate. The law interferes with the revenues of the fee schools, ambitiously known as medical colleges. It tends to check the number of ignorant and incompetent persons who desire to become or be called doctors. It correspondingly threatens the loss of tuition and graduation fees to such fee schools. It creates in them an interest for the repeal of the law, irrespective of the benefit which an improved standard of knowledge and culture among students for medical degrees would confer upon the community. A banded pecuniary interest, directly contrary to the safety and welfare of society, and moved in the name of the schools of a profession which insists on being called a learned profession, has thus been able to carry a repeal of this measure through the Senate of the State and to send the repeal bill to the State Assembly.

The repeal bill is the first step backward which the State of New York or any other State has ever taken in any reform which had been once established, whether Civil Service Reform, Prison Reform, Charities Reform, Ballot Reform, Canal Reform, Labor Reform or any other reform of a public character. Should the Assembly and the Governor concur in the repeal of this measure of medical educational reform, the instance would be as exceptional as it would be signal in the history of remedical legislation in the history of any civilized or presumably civilized Government of men upon the face of the earth. It is hard to believe that the repeal bill can pass the Assembly. The attention of the enlightened press has been directed to the action of the State Senate. The comments of such press have been deservedly severe and alarming. Even if the Assembly should pass the measure, the Governor could hardly, with consistency, sign the repeal bill, because he himself signed the law of which the repeal is thus sought. The progress or the arrest of the progress of this reactionary bit of legislation will be watched with much interest by the enlightened citizens of New York.

Two or three things should be borne in mind with regard to this measure; it applies to intending medical students exactly the provisions which have been applied to *intending law students for the last seven years.* The application of these methods to law students did not originate with the Legislature. It originated with the Court of Appeals of the State. That court found that the bar of the State was being invaded by hordes of ignorant and incompetent applicants, who contemplated under the sanctions of law, the hideous moral burglary of breaking into the profession. The Court of Appeals, therefore, erected this barrier to the invasion of the bar by grasping illiteracy and required that the Board of Regents, through its officers, should become the examiners of intending law students. Since that was done the moral, mental and social standard of the bar has been much bettered. Collectively the men who have become lawyers within the last seven years are of a higher intellectual and moral type than any collectively considered that became lawyers within an equal period of time preceding 1883. Neither the bar nor the courts would on any account now consent to the abrogation of the requiremens then established.

The chartered schools of the so-called medical profession, however, in less than a year after the establishment of a like provision for intending medical students, have induced the State Senate to vote the repeal of such a provision. It must be that the State Senate acted without knowledge or intention of the consequences of what they did when they voted the repeal the other day. Such a plea would not be predicable of the State Assembly, for the effect of the action would have been made plain to

the members of that body as well as to the Governor, before the one or the other could deal finally with it. The Board of Regents are required by law to become the examiners of intending law students and also of intending medical students. That Board did not seek the honor or the responsibility. Its own ordinary and emergent duties are all that it desired to perform and afforded a sufficient employment for its energies. It, however, accepted the new duties obediently and has sought to carry them out in good faith.

Nor is the Board contending for the retention of these duties, nor is the Board extremely concerned whether they are retained or repealed. The matter is not a Board of Regents one, but a State of New York one, and if the legislative representatives of the people, with the Governor, prefer to throw down the barriers against the admission of ignorance into the medical professon that is their business, and theirs alone. The Board would be relieved of an onerous addition to its ordinary work by such a course and the consequences of the alliance of medicine and surgery with rank illiteracy would rest upon the people of the State and not upon the agents designated to establish and enforce a standard of competency and knowledge.

What ignorance and incompetency have done for the medical profession in America some public events have recently disclosed. The announcement has been made that the medical colleges in Germany, the world's centre of the highest medical education, have refused to accept the diplomas of the medical colleges in the United States, because those diplomas can be commanded by persons whose want of knowledge, fitness and culture is so great that they are utterly unqualified for the trusts of the healing art. This disclosure coincides with the endeavor of representatives of American medical colleges, an endeavor put forth at Albany, to perpetuate the conditions favorable to illiteracy and incompetency in medicine and to negative the efforts of the State to increase the standard of entrance into the profession. The news from Europe was mortifying enough the other day. The news from Albany, justifying the attitude of the German schools toward those of America, is even more mortifying still.—Editorial in *Brooklyn Eagle.*

MEDICAL SOCIETIES.

The next annual meeting of the American Medical Association will be held in Nashville, May 20—23. This gathering is looked forward to with very deep interest, as one that is likely to be of great importance to the entire medical profession of this country; for notwithstanding the echoes that every once in a while tingle in our ears of the shortcomings and supposed failure of purpose of this society, its work, if we take a clear retrospect of the past and contemplate, has been superbly grand. For nearly half a century it has been the great balance-wheel that has regulated in a most efficient manner the standard of professional intercourse among many thousand physicians. Since the date of its organization there has scarcely been a medical society, from the great State organizations to the little company of five or six assembling in an obscure hamlet or village, that has not, as a prerequisite to membership, required a subscription to an endorsement and acceptance of the code of ethics adopted by the American Medical Association. Thousands and thousands of these men never once attended its meetings, but unhesitatingly in this manner did a creditable act, and practically brought honor to themselves, in subscribing to a professional code that bound them to observances of the strictest integrity in their intercourse with one another and with the people among whom they sought a professional career. In these years, when this wonderland was filling up with people, and increasing from little more than a score of millions to a nation of more than sixty millions of inhabitants, the American Medical Association has gone on from year to year as the one only great representative organization of general as well as special practitioners of medicine.

Under its encouraging auspices and stimulation medical education has kept pace with the long and ever-increasing strides made by those who engaged in scientific investigations, until the course of study demanded by nearly all medical colleges will compare most favorably with that given in any land. Carping critics have ever been ready to herald information of the little value of American medical college diplomas, and say they were obtained cheaply. Our very great desire is that all such doctors be required to pass a green-room examination in any medical college in this or any of our prominent cities. The process would produce a change of heart and opinion that would be as lasting as life itself.

Never have we been so favorably impressed with medical college work as this past winter and spring. This has been largely due to the evident careful preparatory education that was manifest among the young men, while personal inquiry revealed the fact that a large majority of the students had pursued a collegiate course of literary and scientific study before taking up their medical studies. The moral, intellectual and professional influence of these young men locating here and there throughout the country cannot be overestimated, and nowhere will their influence be found more potent than in the local medical societies with which they will at once become identified.

Within the past year we have noted the premium at which youth was held in our professional societies. But a few years since young men were given to understand that a retiring modesty in demeanor and utterance was becoming and in harmony with their lack of experience. The present marks a wonderful contrast. Young men are expected to come forward and take a front seat, and are encouraged to write elaborate papers on the results of their investigations and cultures.

Right here we want to say that the young man who hesitates to take up the challenge to show the depth and quality of the gray matter that is beneath his scalp and skull-cap is lost. There is no such thing as a stand-still; he must keep up with the procession, and if he can only get there, the going is very much easier and pleasanter in the front than in the middle or rear rank. The best way in the world to keep out of a crowd is to get right before it.

Spirts in society work don't do half as well as a good pace with staying qualities.

One of the reasons for the marvelous results in the proceedings of the American Medical Association has been its wonderful staying ability. A carefully thought out scheme, patiently but enthusiastically adhered to, is certain in the accomplishment of its purpose.

Unity of purpose with completeness of organization produces an *esprit de corps* that has made some societies famous. This has been the tidal wave that has carried forward the great specialty societies, and given their work a world-wide reputation. Some local organizations just boom right along because of the energy and wisdom of their management.

The physician—be he old or young—who fails to identify himself with a local and State society is the man who is being left. He may not be cognizant of it, but all the same it is a fact; and some day, when circumstances oblige him to rub the sand out of his eyes, the lone and forlorn condition of his existence will strike him with all the glare of a noonday sun in the middle of the heated term. A painful dizziness will sicken him for the time, as he makes a struggling effort to comprehend the links that are missing from his chain of wisdom, that he had supposed were perfectly forged by his old teachers when he sat on the benches.

Sometimes this vertigo may be relieved by a personal union with a live society. This is the only known remedy—the only hope. If you are not a member, make haste and "jine the band."—Editorial, *Cincinnati Lancet-Clinic.*

PRACTICAL NOTES.

WASHING OUT THE BLADDER.

In a recent work by D. J. M. Lavaux, he strongly recommends the practice of washing out the bladder by means of hydrostatic pressure, instead of by the action of the syringe. The plan he adopts is similar to that used in what is well known in this country as the "fountain syringe."

He employs a reservoir fixed at a certain height above the patient, and connected by india-rubber tubing, not with a catheter, but with a metallic tube only three centimeters (about an inch) long. The tube fits into a conical, perforated india-rubber obturator, which is introduced within the urethal orifice. The stream of water is then turned on, and a force sufficient to overcome "the inter-urethral" sphincter being employed, the fluid passes on into the bladder. As soon as a feeling of distension is experienced by the patient, the flow is stopped, and the obturator is removed, and the patient empties the bladder by his own effort. The stream of water is regulated by means of a difference in caliber of the short urethral tubes, of which there are six sizes, the smallest having a channel of one millimeter and a third in diameter, and the largest three millimeters. The force of the water flowing through each of the tubes with reservoir at a given height has been calculated, and one size or another is selected according to the sensibility of the bladder, and the resistance of the sphincter in each case.

This plan of injection is said to be applicable to all kinds of cystitis in both sexes, and to be especially useful in painful forms of the affection, in which the introduction of a catheter causes so much pain and irritation. It is also equally applicable for maintaining an aseptic condition of the urinary passages in cases of operation, the essential condition in any case being that the patient should be able to empty the bladder voluntarily. The solutions used by Dr. Lavaux usually contain boric acid or nitrate of silver, varying in strength according to the case. The use of these medicated solutions is preceded or followed by injection of a solution of cocaine whenever the use of that drug is indicated.

Those of our readers who have never adopted this method of introducing liquids into the bladder will be surprised, on attempting it, to find how much may be accomplished by it, and how much suffering it will spare their patients. Not only is this true, but the method offers much greater freedom from risk of septic infection than any which requires the use of a catheter.—*Med. and Surg. Reporter.*

TREATING INFECTIOUS DISEASES.

M. Letulle proposes that the following regulations should be adopted in hospitals, and by doctors treating infectious diseases. Every patient brought to the hospital suffering from a contagious affection should be immediately placed in an isolated ward, so that all contact between infectious cases and surgical cases should be avoided. The clothing of each patient should be disinfected on his arrival at the hospital. A hot bath and subsequent cleansing with a solution of corrosive sublimate at 1 in 1,000 should be practiced. The hospital furniture should be made of iron and easily taken to pieces, so that it may be disinfected at the departure of each patient. The different rooms should be thoroughly aired and disinfected, and all cases of contagious disease isolated. In his hospital practice the physician should avoid importing or carrying away any morbid germ. He should therefore wear a blouse in the wards and disinfect his clothes daily. The same rules apply to his private practice when he has cases of contagious affections to attend.—Paris Corr. *British Medical Journal.*

KAPOSI'S REMEDY FOR WARTS.

Kaposi recommends the treatment of warts by solution of the bichloride of mercury, one part, in flexible collodion, thirty parts. This solution should be applied with a brush once daily to the wart itself, and around its base.

DOMESTIC CORRESPONDENCE.

LETTER FROM NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

New York County Medical Association—The Immateriality of Life and of Disease—A Case of Extra-uterine Pregnancy—The Saturday and Sunday Hospital Collections.

The March Meeting of the New York County Medical Association was one of the largest in the history of the Association. Dr. James R. Leaming, the well-known authority on diseases of the chest, read a philosophical paper on "The Immateriality of Life and of Disease," in which he expressed views on pathology considerably at variance with those commonly accepted at the present day, and somewhat startled his hearers by his skepticism as to the causative agency of morbific microbes.

In speaking of phthisis he stated that in his opinion the bacilli found to be present simply fed on the dead atoms found in the tissues like mold on decaying matter, and that he did not believe they were the cause, but the consequence of the pathological process. In confirmation of his position he referred to his own person. He said that he had been born with an inherited tendency to phthisis, and that at the age of twenty he had had a severe attack of pleuritic trouble, from the consequences of which he was still suffering. For ten years he had attended regularly at the department for diseases of the heart and lungs at the Demilt Dispensary, and that during all this time, with but one interval of three months, he was constantly in the closest contact with tuberculous patients in making his examinations; so that he must inevitably have received quantities of the bacilli into his system. Yet, notwithstanding his exposure here and elsewhere to the so-called germs of the disease, he had been steadily growing out of his natural tendency to phthisis. Furthermore, it had been admitted by the bacteriologists that the bacilli could not be cultivated in a healthy organism.

These views were controverted by Drs. Carroll, Biggs, and others who took part in the discussion of the paper, and the former said that as scientific knowledge increased it was constantly being found that affections of the true pathological nature of which we were formerly entirely ignorant (as, for instance, general paresis) had very definite material lesions; and he had no doubt whatever that every abnormal condition, whether it was classed among functional disorders or not, was accompanied by certain tissue changes, though the latter might be of only a temporary character. A mental impression might be the exciting cause of the trouble, but as a result of this changes in the innervation and vascular supply of certain parts, with consequent disturbances of the system, occurred.

Dr. Biggs, who is favorably known in connection with his scientific work at the Carnegie Laboratory, also said that the more we learned about the pathology of various diseases, the more material they seemed to become. Dr. Leaming, however, seemed to disregard all the advances of the last few years; considering the bacilli merely as concomitant factors and the jeavengus (?), rather than the cause, of disease. At the present time he thought it was hardly worth while to review the argument for the causative agency of these microbes, as everyone was already so familar with the various points. It was now simply a question of the acceptance or rejection of the proof of such causative agency; and Dr. Leaming had not appeared to him to advance any proof of the correctness of his own position. All diseases were recognized now as the result of absorption of energy from external sources, and it seemed conclusive, therefore, that they were material in nature.

At the close of the discussion Dr. A. Palmer Dudley read the report of a case, with specimen, of extra-uterine pregnancy. The patient was 41 years old and had been married twice. By the first husband she had had five children, and since her second marriage she had been pregnant twice, but had miscarried both times. In the latter part of May last her menses should have appeared, but did not, and nausea of a troublesome character supervened. Milk appeared in the breasts, and the latter increased in size. She complained of some pain and sense of heat in the right side, and considered herself pregnant. This condition of affairs continued until July 10, when she had a slight rush of blood from the vagina, and from that date she had each day a slight flow of blood until the 23d. On that morning she felt very miserable and had some pain in the right side, but she kept about the house, and while lifting a small trunk she was suddenly seized with a frightful pain in the right side and back, and was soon in collapse. The nature of the case was not recognized, and she was given stimulants and kept in bed. She continued to suffer great pain and some flow of blood from the vagina, and evidences of localized peritonitis were present. On August 1, while still in bed, she was seized with another attack of intense pain, and in a few moments was in such profound collapse that she was thought to be dying. After a time, however, she rallied. This attack was followed by severe peritonitis, but this also yielded to treatment, and she once more improved in strength.

Dr. Dudley first saw her, in consultation with her family physician, on the 22d of August, and he was able to readily make out what he considered an extra-uterine pregnancy occupying the

right half of the pelvis, pushing the uterus towards the left side, and also extending up the right side to midway between the pubes and umbilicus. It was his opinion that the sac had ruptured at the time of the sudden pain and collapse, and that the peritonitis had supervened as a result of rupture. He advised an immediate operation for removal of the sac, but no decidua had been discovered and the mass seemed to merge into the uterus.

The patient was then removed to the hospital, and the day after this she passed a large quantity of membranes. This positively confirmed the diagnosis and decided the question of immediate operation. On August 27 he made an abdominal section sufficiently large to introduce his hand. The omentum and small intestines were found to be one mass of adherent tissues, and were also firmly attached to the abdominal walls, the fundus of the uterus and the bladder. On breaking through these adhesions a considerable quantity of dark clotted blood appeared, and the fœtus was then found to have escaped from the anterior side of the tube and to be lying between the bladder and the cæcum. The placenta was attached to the posterior part of the tube and the broad ligament, and occupied the entire right half of the pelvic cavity. The fœtus was readily removed, but the attempt to remove the placenta was at once attended by a profuse hæmorrhage. This was arrested by long clamp forceps applied to the broad ligament, and the ovary and tube with its placenta were then quickly torn from their attachments in the cul-de-sac and lifted through the incision. Not as much bleeding followed this as was expected. The pedicle was ligated with silk, cut short, touched with pure carbolic acid, and dropped back. The abdominal and pelvic cavities were thoroughly washed out several times with very hot water, and then sponged thoroughly dry. The left ovary and tube were lifted up and inspected and, being found healthy, were dropped back. The abdominal incision was then closed with catgut and silk sutures. No drainage tube was used.

The patient rallied well from the operation. With the exception of an abscess in the abdominal wall to the left of the incision, nothing occurred to mar the progress of her recovery, and at the present time, seven months after the operation, she is perfectly well. Her last menstruation was in the latter part of April. She must have been about three months pregnant when the sac ruptured, and the fœtus had evidently lain in the abdominal cavity nearly a month when removed.

Dr. Dudley said that as far as he was able to judge, the weight of evidence at the present time is in favor of a radical operation as soon as the diagnosis can be made out. The points upon which he said he would invite discussion were these:

1. How early is it possible for us to make a diagnosis of ectopic gestation with any degree of certainty?

2. Is there any positive sign to guide us in making a diagnosis except the appearance of a decidual membrane?

3. When a diagnosis can be made with reasonable certainty should we delay, or operate at once?

4. Should a drainage tube be used after operating?

Dr. Wm. T. Lusk said the points mentioned by Dr. Dudley were the very ones about which obstetric surgeons were most in doubt. He had himself recently reported two cases of laparotomy, but they had both been performed after rupture. In either of them it would have been impossible under ordinary circumstances to make a diagnosis before rupture. It was true that in one of them the patient had experienced some little pain, but it was only such as is often met with in normal pregnancy. He had in the last few years changed his views very considerably on this subject, and he now believed that the number of cases in which we could diagnosticate extra-uterine pregnancy in advance was really very small. The trouble was that formerly we did not at all appreciate how extremely common these cases of extra-uterine pregnancy really are. There were a certain number of them in which the diagnosis was comparatively easy; the fœtus getting down between the folds of the broad ligament. In such cases the use of the Faradic current had proved successful in nearly all the instances in which it had been employed. He did not mean to say, however, that he might not resort to laparotomy in such a case himself. This operation, when performed under favorable circumstances, was not ordinarily attended with any great amount of danger; but unless all the recognized appliances for its successful performance were at hand and unless the operator was accustomed to this kind of work, laparotomy was now just as fatal as it ever was. He did not think it was right, therefore, to decry the use of electricity in such cases; and he had certainly often seen this means of treatment attended with the most favorable results.

In conclusion, Dr. Lusk mentioned a case which he said he believed was of a character not previously reported in this Association or in this city. The patient had been sent to him by Dr. Biggs, and he performed laparotomy. The tumor was in the left iliac fossa, and he dissected it out and found blood clots in the tube. There could be little doubt that this was originally a tubal pregnancy; but it had been converted into a blood-sac. It was apparently a case of so-called tubal abortion.

Dr. Joseph E. Janvrin, President of the New York Obstetrical Society, said that Dr. Dudley's was a secondary operation, performed after he was perfectly aware that rupture of the tube had

taken place. As to the questions he had propounded, of all the symptoms which went to make up the diagnosis, expulsion of decidua was the only absolute sign. The diagnosis had, however, been made as early as the seventh or eighth week without the evidence of decidua. Four or five years ago he had reported such a case to the American Gynecological Society, and since then other cases had been reported. We had the usual symptoms of pregnancy, and in addition there was at the side of the uterus a semi-elastic tumor, which was exquisitely tender to the touch, and which felt like a distended tube. The presence of such a tumor, added to the ordinary signs of pregnancy, would, he thought, enable us to make a positive diagnosis of ectopic gestation.

As to the results of the treatment by galvanism, in one case in which he had employed it there had been a partial rupture, and the patient had died in consequence of this not later than the ninth week. When the condition which he had described presented itself, he would not hesitate for a moment to open the abdomen and discover what the actual condition of affairs was. Almost the only thing that could be present, if there was no extra-uterine pregnancy, would be disease of the tube, such as pyosalpinx or hydrosalpinx; and if the latter were found when the abdomen was opened, the operation would be abundantly justified. He was perfectly willing to grant all that had been claimed for galvanism in the past; but, being reasonably sure of our status, what was after all the best thing to do? In his opinion laparotomy was decidedly the better procedure, for there was certainly disease present, if extra-uterine pregnancy did not exist.

As to the use of the drainage tube, this must be left entirely to the surgeon, who would be guided by the existing circumstances in each individual case. In some cases it certainly seemed advisable to use this, at least for a time. One other point. The fact that patients suffering from tubal pregnancy were frequently seized with colicky pains before the end of the second month (which pains might result in collapse), did not necessarily imply rupture of the sac. There might be only slight injury to the latter, but this partial laceration was often sufficient to produce profound collapse. As to the class of cases referred to by Dr. Lusk, which developed down in the broad ligament and separated the muscular structures, these usually went on pretty well to the sixth or seventh month. When the fœtus was extracted from the tube the symptoms were generally so characteristic that any experienced observer could recognize the condition without trouble. Laparotomy was here the only thing to be done, and there could be no question whatever as to its propriety.

In closing the discussion Dr. Dudley said that he believed with Dr. Janvrin that it was possible to make the diagnosis quite early, especially if we had existing together a certain class of symptoms similar to those met with in the case which he had reported. He did not believe, however, that it was possible to make an absolutely positive diagnosis until the decidua appeared. Still, without this we could make a diagnosis sufficient to warrant either the use of electricity or a resort to laparotomy. There was one point to which he desired to call attention, and that was that the placenta may continue to increase in size after the death of the fœtus, as had unquestionably been the case in this instance. With regard to electricity, while this means of treatment might destroy the fœtus, it would not *cure* the woman. It would not reopen the tube, and there therefore remained a diseased condition. When laparotomy was performed, however, everything was removed and no such focus of irritation remained in the pelvis afterward.

With respect to the drainage tube, he said that it had been his practice never to use this in any case unless there was free pus present. He had employed it in only two cases out of about seventy, and both of these died. In the case which he had reported this evening no drainage tube was used, and he thought that the omission to do so was justified by the result obtained. He believed in the use of electricity to stop the development of the fœtus, but at the same time thought that most of the cases would come to laparotomy afterward. In experienced hands and performed with all the requisite precautions, he did not think laparotomy any more dangerous than electricity.

The Saturday and Sunday hospital collection was larger this season than ever before, amounting to $57,000, and it has now been distributed to the various institutions entitled to a share in the fund.

It is very gratifying to learn that the bill which provides for the removal of the pauper insane from the county poorhouses to first-class State asylums has passed the lower house of the Legislature, and that it is likely to pass the Senate also. For two or three years the friends of this long hoped for reform have been striving with all their energy to get such a bill through the Legislature, and it has been a hard struggle between enlightenment and public spirit on the one hand, and ignorance and avarice on the other.

In the face of the facts brought forward in the admirable address of Dr. Jacobson on "Homœopathy and Medical Progress," which was published in THE JOURNAL of March 25, it is certainly to be wondered at that at the recent meeting of the Medical Society of the State of New York the President, Dr. Daniel Lewis, in his annual address, should have gravely recommended that the principles and practice of homœopathy should be regularly taught as a part of the curriculum of our medical colleges. P. B. P.

Extraction of a Key from the Trachea.

To the Editor:—On the evening of February 14, 1890, Carl Blohm, aged 2 years, was brought to my office by his father, who stated that the boy had "swallowed" a key a few moments before. The patient was voiceless, dyspnœa was constant and alarming, and there was a frequent croupy cough. There was great retraction of the soft parts about the clavicles and in the inframammary regions in inspiration. It was very evident that the foreign body was somewhere in the air passages, and it seemed to me probable that it had not passed much below the larynx, as I could on no other theory account for the complete aphonia. However, neither with the finger nor with a pair of laryngeal forceps was I able to reach it through the mouth. It was plain that relief, to be of avail, must be speedy. Accordingly, after ineffectually trying a vigorous shaking with the patient inverted, I proceeded to perform tracheotomy under chloroform anæsthesia. The operation just above the isthmus of the thyroid was chosen, and in making the incision in the trachea I was so fortunate as to come directly upon the lower and smaller end of the offending key; and now came the part of the affair that seemed to me to be of peculiar interest. The key, or at least the large end of it, was so much wider than the diameter of the trachea that with the ordinary laryngeal forceps I was wholly unable to remove it from its position, as the blades of the instrument would slip off at every effort to grasp and remove the foreign body. It was only by taking a stout pair of polypus forceps that I was enabled to extract it. The key was of steel and measured 30 millimetres in length and at the widest part 13 millimetres in width. I have not been able to find in any authority accessible to me a table of the diameters of the trachea at different ages, but I am confident that in this patient it did not exceed 7½ or 8 millimetres. Relief to respiration was perfect, and as soon as the little fellow regained consciousness he audibly expressed his satisfaction with the result, as I held my finger over the tracheal opening to enable him to use his vocal organs. No tube was used, as I could see no indication for it, and the incision was allowed to close, which it did inside of forty-eight hours. A pretty severe bronchopneumonia came on on the second day and lasted four or five days. The patient is now practically well.

M. G. Sloan, M.D.

Dexter, Iowa, March 1, 1890.

The McKinley Tariff Bill has some features that will interest medical men. It allows the importation free of books and pamphlets printed in any language but the English, and of periodicals in all languages. Opium is put upon the free list.

ASSOCIATION NEWS.

American Medical Association, Forty-First Annual Meeting.

Section of Obstetrics and Diseases of Women.

The following list embraces the titles of papers that have been offered to this Section to April 1.

1. "Intra-Ligamentary Cysts," by W. H. Wathen, Louisville, Ky.
2. "Primary and Ultimate Results of Vaginal Hysterectomy for Cancer," by Charles A. L. Reed, Cincinnati, Ohio.
3. Title not announced, Rufus B. Hall, Cincinnati, Ohio.
4. "Gonorrhœal Disease of the Uterine Appendages," by J. M. Baldy, Philadelphia, Pa.
5. "A Plea for Early Vaginal Hysterectomy in Cancer of the Uterus," by Franklin H. Martin, Chicago, Ill.
6. "A Retrospect of Pelvic Surgery," by Joseph Price, Philadelphia, Pa.
7. "The Treatment in Placenta Prævia," by Aug. P. Clarke, Cambridge, Mass.
8. "Moot Points in the Doctrine of Placenta Prævia," by W. W. Jaggard, Chicago, Ill.
9. "The Treatment of Placenta Prævia, based on an Experience of Thirty-four Cases," by G. H. Balleray, Paterson, N. J.
10. "She Supposed it was Her Change of Life," by A. Vander Veer, Albany, N. Y.
11. Title not announced, by J. H. Kellogg, Battle Creek, Mich.
12. "A Résumé of the Ideas of Paul Portal's Pratique des Accouchments," by John Bartlett, Chicago, Ill.
13. "Psychical Results of Gynecological Operations," by I. S. Stone, Lincoln, Va.
14. "Stricture of the Urethra in Women," by Ely Van de Warker, Syracuse, N. Y.
15. Title not announced, by John B. Deaver, Philadelphia, Pa.
16. Title not announced, by C. B. Penrose, Philadelphia, Pa.
17. "Antiseptics in Obstetrics," by T. B. Greenby, West Point, Ky.
18. "Hyperemesis Gravidarum," by E. W. Mitchell, Cincinnati, O.
19. "Uterus Bilocularis," by L. H. Dunning, Indianapolis, Ind.
20. "The Great Utility of Bleeding in Puerperal Convulsions," by John G. Meacham, Racine, Wis.
21. Title not announced, by Wm. E. Ashton, Philadelphia, Pa.
22. "A Plea for the General Adoption of the Traction Forceps," by Joseph Hoffman, Philadelphia, Pa.
23. "Surgical Treatment of Non-Pedunculated Abdominal Tumors," by Henry O. Marcy, Boston, Mass.

24. "Extra-Uterine Pregnancy, with Cases," by E. E. Montgomery, Philadelphia, Pa.

25. "Laparotomy for the Purpose of Restoring the Functions of the Tubes and Ovaries," by William M. Polk, New York N. Y.

26. "Abdominal Section; its Practical Success," by R. Stansbury Sutton, Pittsburgh, Pa.

27. "The Intra-Peritoneal Ligature," by L. S. McMurtry, Louisville, Ky.

28. "A New Operation for the Relief of Prolapse of the Anterior Vaginal Wall," by Andrew F. Currier, New York, N. Y.

29. "Diseases of the Female Pelvic Organs, and when to Operate by Abdominal Section," by M. B. Ward, Topeka, Kansas.

This list is made up in the order of the reception of the titles; the papers will be grouped by subjects as near as possible for the meeting. Authors whose titles are not announced are requested to send them to the Chairman without delay.

WM. WARREN POTTER, M.D.,
Chairman.

JOSEPH HOFFMAN, M.D., *Secretary.*

INTERNATIONAL MEDICAL CONGRESS.

Tenth International Medical Congress, to be held in Berlin, August 4 to 9.

The Committee of Organization of the Tenth International Medical Congress, R. Virchow, *President*; E. von Bergmann, E. Leyden, W. Waldeyer, *Vice-Presidents;* O. Lassar, *Secretary-General*, have appointed the undersigned members of an American Committee for the purpose of enlisting the sympathy and coöperation of the American profession.

We are assured that the medical men of our country will receive a hearty welcome in Berlin. The Congress promises to prove of inestimable value in its educational results, and in securing the ties of international professional brotherhood. It is most important that the American profession should participate both in its labors and fruits.

Delegates of American Medical Societies and Institutions, and individual members of the profession, will be admitted on equal terms. The undersigned, therefore, beg to express their hope that a large number of the distinguished men of our country will appreciate both the honor conferred by this cordial invitation and the opportunity afforded us to fitly represent American medicine.

The Congress will be held at Berlin, from the 4th to the 9th of August.

The arrangements in regard to a few general meetings and the main scientific work, which is delegated to the Sections, are the same as in former sessions. A medico-scientific exhibition, the programme of which has been published a few weeks ago, is to form an ingredient part. It is to the latter that the Berlin Committee is very anxious that both the scientific and the secular press should be requested to give the greatest possible publicity.

The office of the Secretary-General is Karlstrasse 19, N. W., Berlin, Germany.

S. C. Busey, Washington, D. C.; Wm. H. Draper, New York City; R. H. Fitz, Boston, Mass.; H. Hun, Albany, N. Y.; A. Jacobi, New York City; Wm. T. Lusk, New York City; Wm. Osler, Boston, Mass.; Wm. Pepper, Philadelphia, Pa.; J. Peyer Porcher, Charleston, S. C.; J. Stewart, Montreal, Can.

MISCELLANY.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from March 29, 1890, to April 4, 1890.

By direction of the Secretary of War, Capt. Henry P. Birmingham, Asst. Surgeon, is relieved from station at Ft. Klamatk, Ore., and from temporary duty at Vancouver Bks., Washington, and will report in person to the commanding officer, Boise Bks., Idaho, for duty at that post. Par. 6, S. O. 72, A. G. O., Washington, March 27, 1890.

First Lieut. Charles F. Mason, Asst. Surgeon, is granted leave of absence for two months, to take effect on or about April 15, 1890, by direction of the Secretary of War. Par. 3, S. O. 76, A. G. O., Washington, April 1, 1890.

Capt. Marcus E. Taylor, Asst. Surgeon, leave of absence for one month granted by par. 3, S. O. 26 c. s., Hdqrs. Dept. of the Columbia, is hereby extended one month, on surgeon's certificate of disability. Par. 1, S. O. 19, Div. of the Pacific, March 27, 1890.

By direction of the Secretary of War, a board of medical officers, to consist of Col. Edward P. Vollum, Surgeon; Major George M. Sternberg, Surgeon; Major Henry McElderry, Surgeon; Capt. John J. Cochran, Asst. Surgeon; is constituted to meet in New York City on the 28th day of April, 1890, or as soon thereafter as practicable, for the examination of Asst. Surgeons for promotion and of candidates for admission into the Medical Corps of the Army. The board will be governed in its proceedings by such instructions as it may receive from the Surgeon-General. Par. 6, S. O. 78, A. G. O., April 3, 1890.

Capt. J. O. Skinner, Asst. Surgeon U. S. A. (Ft. Ontario, N. Y.), is hereby granted leave of absence for one month, the leave to commence forthwith, as his services may be required with troops to change station early in May. Par. 5, S. O. 75, Div. of the Atlantic, April 2, 1890.

Official List of Changes in the Medical Corps of the U. S. Navy for the Week Ending April 4, 1890.

Surgeon N. McP. Ferebee, ordered to the U. S. S. "Essex."

P. A. Surgeon Frank Anderson, detached from the U. S. S. "Dolphin" and ordered home.

P. A. Surgeon S. H. Griffith, detached from the Museum of Hygiene and ordered to the U. S. S. "Dolphin."

P. A. Surgeon A. C. Heffenger, ordered to temporary duty at Navy Yard, Portsmouth, N. H.

Surgeon Manly H. Simons, ordered to superintend repairs at Widows Island Hospital, in addition to present duties.